3rd INTERNATIONAL RESEARCH MEETING

Hôtel Marigny, Paris, june 10th, 2011

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EDITO

Dans le monde virtuel d'aujourd'hui, les rencontres et échanges dans un temps et un espace finis prennent une dimension toute particulière.
C'est ce qui explique le succès des Rencontres Internationales de Recherche, initiées en juin 2009 pour mettre en relation les équipes de recherche françaises et les grands laboratoires pharmaceutiques mondiaux.
Ce rendez-vous d'une journée se concentre comme chaque année sur un domaine bien défini de la recherche biomédicale : après les neurosciences en 2009, les maladies métaboliques en 2010, cette édition 2011 est organisée autour des maladies infectieuses.
Je suis particulièrement fier de vous présenter ce domaine d'excellence qui illustre bien la créativité de notre recherche. Le rayonnement de nos découvertes a permis d'établir de nombreuses coopérations avec le monde industriel et de structurer une industrie du vaccin forte et reconnue.
Ces liens, il faut les encourager et les intensifier, car c'est de la multiplication des partenariats entre recherche publique et recherche privée que jaillira l'innovation thérapeutique. Cette troisième édition des Rencontres Internationales de Recherche que j'ai le plaisir d'organiser avec le LIR* et sa directrice, Agnès Soubrier, AVIESAN** et son président André Syrota, ARIIS et son président Pierre Teillac s'inscrit dans cette dynamique en permettant de révéler les complémentarités entre les travaux des organismes publics et les projets des industriels.
Avec, de surcroit, et ce n'est pas le moindre de ses objectifs, l'ambition ultime de renforcer la compétitivité de la recherche française.

ARNOLD MUNNICH

Conseiller pour la recherche biomédicale et la santé à la Présidence de la République

**LIR. Laboratoires Internationaux de Recherche. **AVIESAN. Alliance nationale pour les sciences de la vie et de la santé. ***ARIIS. Alliance pour la recherche et l'innovation des industries de santé.*

EDITO

In today's virtual world, actual meetings and exchanges in finite time and space are becoming the exception, and this accounts for the success of the International Research Meetings, which began in June 2009 and were designed to bring together French research teams and major worldwide pharmaceutical companies.
The present one-day meeting will focus on a specific area of biomedical research: after neurosciences in 2009 and metabolic diseases in 2010, the 2011 edition will be specifically centered on infectious diseases.
I am especially proud to present to you this area of excellence, which amply illustrates the creativity of French research. Our discoveries have given rise to numerous partnerships with the industrial sector and have helped forge the foundations of a strong and widely recognised vaccines industry.
Such links must be encouraged and strengthened, since therapeutic innovation will naturally flow from flourishing partnerships between public and private research. This third International Research Meeting, which it is my pleasure to organise alongside LIR and its director, Agnès Soubrier, together with AVIESAN and its president André Syrota, and ARIIS and its president Pierre Teillac, constitutes an essential part of this dynamic movement and casts much light on the complementary nature of research conducted by public bodies and projects undertaken by private manufacturers.
Finally, let us not overlook a key ambition of the event, which is to ensure greater competitiveness for French research.

ARNOLD MUNNICH

Adviser to the President of the French Republic on biomedical research and health

**LIR. Laboratoires Internationaux de Recherche – International Research Laboratories **AVIESAN. Alliance nationale pour les sciences de la vie et de la santé – French national alliance for the life sciences and health ***ARIIS. Alliance pour la recherche et l'innovation des industries de santé - French national alliance for research and innovation in the health industry*

Lésions des fibres musculaires au cours de l'infection par le virus HIV.
Photo : M. Fardeau

PROGRAM FRIDAY 10TH JUNE 2011
HÔTEL MARIGNY, PARIS

8.00 AM-

WELCOME
Official introduction and opening

SCIENTIFIC PROGRAM
Moderator: Professeur Jean-François Delfraissy, ITMO IMMI, Paris

1. New mechanisms/paradigms
Moderators: François Loïc Cosset, Lyon and Olivier Schwartz, Institut Pasteur Paris
Speakers: Philippe Sansonnetti, Institut Pasteur Paris : *From bugs and men to treatments and vaccines*
Eric Oswald, Toulouse: *Escherichia coli: the enemy within*
Stéphanie Blandin, Strasbourg: *Towards new approaches to control malaria gambiae*
Marc Lecuit, Institut Pasteur Paris: *Microbes and host barriers*
Ivo Gomperts Boneca, Institut Pasteur Paris: *"Targeting and tracking the peptidoglycan"*
Guillaume Duménil, HEGP Paris: *Arterial wall colonization by bacteria*
Jean-Laurent Casanova, Necker Paris: *Life-threatening infectious diseases of childhood: single-gene inborn errors of immunity?*
Questions and answers

2. New targets, new tools
Moderators: Brigitte Autran, Pitié Salpêtrière Paris and Laurent Gutmann, HEGP Paris
Speakers: Didier Raoult, Marseille: *Ignorance, speculative deductions, unconfirmed predictions*
Monsef Benkirane, Montpellier: *Identification of the dendritic and myeloid cells-specific HIV-1-restriction factor counteracted by Vpx*
Yves Gaudin, Gif sur Yvette: *Structural organization and working of rhabdovirus fusion machinerie*
Béhazine Combadière, Pitié Salpêtrière Paris: *Skin immunology: how to initiate immunity and to maintain immune memory*
Jean-Michel Pawlostky, Henri Mondor Paris: *New treatment strategies for hepatitis C virus infection*
Patrice Nordmann, Bicêtre /Marie-Cécile Ploy, Limoges: *Diagnostic of Emerging Antibiotic Resistances*
Questions and answers

SPEECH ON BEHALF OF THE PRESIDENT OF THE REPUBLIC, NICOLAS SARKOZY FOLLOWED BY A BUFFET-LUNCH

3. Research in partnership with low and middle income countries
Speakers: François Dabis, Bordeaux
Infectious Diseases in the Developing World and French-based networks
Eric Leroy, Gabon: *Emergence of Ebola hemorrhagic fever: from the field to the lab*
Questions and answers

PERSONALIZED MEETINGS BETWEEN THE INTERNATIONAL GUESTS AND THE REPRESENTATIVES OF THE FRENCH PUBLIC SECTOR RESEARCH TEAMS

5.00 PM-

CONCLUSION

SPEAKERS/CONTACTS

Brigitte Autran : PU PH
CHU Pitié Salpêtrière. Université Pierre et Marie Curie
Co-Directrice : IFR Immunité - Cancer – Infection
Keywords : Virus-specific T cell immunity. HIV.
Oncogenic viruses. HCV.
Herpesviruses. Immunogenomics. Vaccines.
Brigitte.Autran@Psl.Aphp.Fr

Monsef Benkirane : DR1-CNRS
Responsable du département «Bases Moléculaires de Pathologies Humaines»
à l'Institut de Génétique Humaine. Montpellier
Responsable de l'équipe «virologie Moléculaire»
Keywords : AIDS. HIV. Restriction. Dendretic cells.
Innate immunity. Vaccines.
Monsef.Benkirane@Igh.Cnrs.Fr,

Stéphanie Blandin : CR, Inserm
IBMC Strasbourg
Keywords : Malaria. Anopheles mosquitos.
Plasmodium parasites.
Host-parasite infections. Complement-like proteins.
Stephanie.Blandin@Inserm.Fr

Jean-Laurent Casanova : Professeur
The Rockefeller University (RU), New York et
Université Paris Descartes (UPD), Paris
Directeur, Laboratoire de Génétique Humaine des Maladies Infectieuses,
INSERM, UPD et RU. Pédiatre, Rockefeller Hospital, New York et Hôpital Necker, Paris
Keywords : primary immunodeficiencies.
Infectious diseases. Herpes simplex encephalitis.
Mendelian susceptibility to mycobacterial disease.
Invasive pneumococcal disease.
Human genetics. Immunology.
Chronic mucocutaneous candidiasis.
Jean-Laurent.Casanova@Inserm.Fr

Behazine Combadière : Directeur de recherche, DR2 INSERM
INSERM UMRS-945, Pitié-Salpétrière, Paris
Keywords : Infectious diseases.
Vaccination. HIV. Influenza.
Preclinical studies. Clinical trials.
Behazine.Combadiere@Upmc.Fr

François-Loïc Cosset : DR1 CNRS
Directeur du Laboratoire de Virologie Humaine,
Inserm U758 - ENS Lyon.
Keywords : Hepatitis C. Neutralizing antibodies.
Viral assembly and development.
Gene therapy. Vaccines. Cell entry. Receptors.
Envelope glycoproteins. Host responses.
Screening. Antivirals.
Francois-Loic.Cosset@Ens-Lyon.Fr

François Dabis : PU-PH
Université Bordeaux Segalen,
Directeur Equipe Inserm VIH, Cancer & Santé Globale
Keywords : Sub-saharan Africa. HIV-1. HIV-2. Cancer.
Care and treatment of Chronic diseases. Prevention.
Francois.Dabis@Isped.U-Bordeaux2.Fr

Guillaume Dumenil : CR INSERM
Paris centre de recherche cardiovasculaire, chef d'équipe
Keywords : Septicemia. Meningitis. Endothelial cells.
Meningococcus. Blood-brainbarrier.
Guillaume.Dumenil@Inserm.Fr

Yves Gaudin : DR1 CNRS
Directeur du laboratoire de Virologie Moléculaire et Structurale, UPR 3296, CNRS, Gif sur Yvette
Keywords : Vesicular stomatitis virus.
Rabies. Rhaddovirus. Glycoprotein.
Membrane fusion. Structure.
Yves.Gaudin@Vms.Cnrs-Gif.Fr

Ivo Gomperts Boneca : Directeur de Recherche 2ème classe INSERM
Responsable de Groupe Biologie et génétique de la paroi bactérienne, Institut Pasteur
Keywords : Infectious diseases. Antibiotic resistance.
Nod1. Nod2. Penicillin-binding proteins.
Peptidoglycan hydrolases.Helicobacter pylori.
Ivo.Gomperts-Boneca@Pasteur.Fr

Laurent Gutmann : PUPH
Chef de service Laboratoire de Microbiologie Hôpital Georges Pompidou, Université Paris V
Keywords : Cell wall. Targets of antibiotics.
Medical microbiology.
Laurent.Gutmann@Egp.Aphp.Fr

Marc Lecuit: PUPH, service des Maladies Infectieuses et tropicales, Hôpital Necker-Enfants malades, Université Paris Descartes
Responsable, groupe Microorganismes et barrière de l'hôte, Institut Pasteur, Inserm
Responsable CNR et CC-OMS Listeria
Keywords: Neonatal infections. CNS infections. Foodborne infections. Blood-brain barrier. Intestinal barrier.Listeria. Group B streptococcus. Chikungunya virus. Arbovirus.
Marc.Lecuit@Pasteur.Fr

Eric Leroy: Docteur de l'université Paris 6, Docteur vétérinaire
Directeur de Recherche, UMR IRD 224 - CNRS 5290 – Université Montpellier 1
Chef de l'unité des maladies virales émergentes, CIRMF, Gabon
Keywords: Viral hemorrhagic fevers; Ebola, Marburg, Crimea-Congo, yellow fever, Lassa fever. Arbovirus: chikungunya, dengue, zika. Highly pathogenic viral diseases: H1N1, poliovirus. Virology. Immunity, Epidemiology during outbreak setting.
Eric.Leroy@Ird.Fr

Patrice Nordmann: PUPH
CHU Bicetre/Université Paris XI Directeur Inserm U914
Keywords : Infectious diseases. Bacteria. Antibiotic. Resistance. Molecular biology. Diagnostic.
Nordmann.Patrice@Bct.Aphp.Fr

Eric Oswald: PU-PH
CHU Purpan, Université de Toulouse III, U1043 INSERM, USC INRA
E.Oswald@Envt.Fr

Jean-Michel Pawlotsky: PUPH
Directeur du CNR des Hépatites Virales B, C et delta; Chef du Service de Bactériologie-Virologie-Hygiène;
Directeur de l'équipe de recherche «Physiopathologie et Thérapeutique des Hépatites Virales Chroniques»;
Hôpital Henri Mondor, Université Paris-Est, Créteil
Keywords: Hepatitis C. Hepatitis B virus. Direct acting antiviral drugs. Hepatocellular carcinoma.
Jean-Michel.Pawlotsky@Hmn.Aphp.Fr

Marie-Cécile Ploy: PUPH
Chef de service Bactériologie-Virologie-Hygiène
CHU Limoges,
Directeur Equipe Avenir Inserm/EA3175,
Université de Limoges
Keywords: Antibiotic. Resistance. Gene transfer. Integrons. New targets.
Marie-Cecile.Ploy@Unilim.Fr

Didier Raoult: PUPH
URMITE - UMR CNRS 6236, IRD 198,
Université de la Méditerranée, Faculté de Médecine
Didier.Raoult@Univmed.Fr

Philippe Sansonetti: Professeur au Collège de France, Professeur a l'Institut Pasteur
HHMI foreign scholar
Head Unit de pathogénie microbienne moléculaire & unité INSERM 786.Institut Pasteur
Keywords: Gut epithelium. Respiratory tract. Pathogenesis. Cellular microbiology. Immunology. Homeostasis. Vaccination. Therapeutics. Microbiota. Shigella. Kiebsiella.
Philippe.Sansonetti@Pasteur.Fr

Olivier Schwartz: Professeur Institut Pasteur
Directeur de l Unité Virus & Immunité
Keywords: HIV. AIDS. Nef. Virological synapse. Antiviral drugs. Vaccine candidates.
Schwartz@Pasteur.Fr

LE DÉFI DES MALADIES INFECTIEUSES

Les maladies infectieuses, provoquées par les virus, les bactéries et les parasites, constituent un problème de santé publique qui se présente, depuis ces dernières décennies, avec une ampleur et des problématiques nouvelles.

Elles posent en effet un problème d'envergure mondiale : elles tuent chaque année près de 17 millions d'êtres humains essentiellement dans l'hémisphère Sud, un chiffre qui ne semble pas devoir diminuer dans les années à venir.

Les effets conjugués de la mondialisation, de l'évolution des agents infectieux et de la montée des résistances aux antibiotiques vont dans le sens d'une propagation des maladies infectieuses et malheureusement d'une augmentation du nombre de leurs victimes.

La globalisation des maladies infectieuses

La multiplication des échanges internationaux, les modifications de l'environnement par l'homme (déforestation, barrages, etc), l'urbanisation mal planifiée (absence de systèmes d'assainissement notamment), l'expansion démographique, les modifications de comportements, les déplacements de population lors de conflits, les famines, l'absence d'infrastructures de santé pérennes dans de nombreux pays, favorisent en effet leur expansion.

Il apparaît de plus en plus difficile de contenir des maladies « anciennes », que l'on sait pourtant soigner, en raison de l'apparition de résistances. C'est le cas notamment de la tuberculose et du paludisme. Des maladies plus « récentes » comme le VIH se propagent rapidement tandis que de nouvelles pathologies émergent régulièrement.
L'infection par le VIH reste un problème majeur de santé publique, dans les pays du Sud avec plus de 2,7 millions de nouvelles contaminations chaque année, mais aussi au Nord en particulier dans certains groupes. A côté des aspects thérapeutiques, les enjeux de recherche sur le dépistage, les nouvelles technologies biomédicales de prévention, la recherche sur le vaccin, sont majeurs pour les années qui viennent.

L'évolution des agents infectieux : émergence de nouveaux virus et extension de leur champ de responsabilités

On assiste depuis le début des années 80, à l'émergence de nouveaux agents infectieux, Legionella, SRAS, virus Ebola, Marburg, H1N1 …qui réveillent nos craintes d'une épidémie majeure à l'image de l'épidémie de grippe espagnole de 1918 et de ses trente millions de morts.

Cette émergence est favorisée par l'évolution du profil des maladies infectieuses : elles sévissent désormais dans des zones qu'elles ignoraient jusqu'à alors. L'infection à virus West Nile (WNF) originaire comme son nom l'indique du district de West Nile en Ouganda et restreinte au Vieux Monde, a gagné la région

new-yorkaise au début des années 2000 puis s'est étendue à l'ensemble des USA et une partie du Canada en moins de 5 ans.

Par ailleurs, de nombreuses maladies se sont révélées être des conséquences d'infections : c'est le cas de la maladie ulcéreuse gastroduodénale, de la maladie de Whipple, du lymphome du MALT mais aussi du sarcome de Kaposi.

Des agents infectieux et en particulier viraux, sont probablement impliqués dans la physio pathogénie initiale de nombreuses pathologies chroniques, qui ne sont pas encore identifiées comme des maladies infectieuses au sens classique du terme. Ceci est vrai en cancérologie, par exemple, où l'on sait déjà qu'environ un tiers des cancers serait lié, en tout cas dans les mécanismes initiaux, à un agent infectieux viral ou bactérien.

Des agents infectieux résistants, voire multi-résistants

Les bactéries sont devenues de plus en plus résistantes à l'antibiothérapie. Le phénomène de résistance aux antibiotiques lié à l'évolution naturelle des bactéries a atteint aujourd'hui une ampleur alarmante : les cas de multi-résistances, c'est-à-dire de bactéries devenues résistantes en même temps à plusieurs familles d'antibiotiques, se multiplient tout comme les échecs thérapeutiques.
Des maladies, que l'on croyait éradiquées sous nos latitudes, refont leur apparition. La tuberculose, les méningites, les infections respiratoires gagnent du terrain face à des traitements dont l'efficacité est en perte de vitesse.

Le VIH, le virus de l'hépatite C (VHC), les virus influenza, ainsi que d'autres virus, développent également des résistances aux traitements. L'infection par le VHC, une cause majeure d'hépatite chronique dans le monde, touche plus de 170 millions de personnes. Malgré les progrès, les classes de médicaments dont on dispose ne sont malheureusement pas efficaces chez tous les patients et nombre d'entre eux développent des résistances aux antiviraux.

Devant l'ingéniosité des agents infectieux, leur capacité à s'adapter et à déjouer les stratégies médicamenteuses, la biologie et plus précisément la microbiologie se doivent d'être particulièrement inventives en explorant toutes les voies possibles de compréhension du monde microbien et de ses interactions avec les autres milieux.

Ce sont toutes ces voies de recherche menées par des équipes françaises de renommée internationale qui sont présentées aujourd'hui en « 8 minutes chrono » devant 21 des plus grands laboratoires pharmaceutiques mondiaux.
Ces échanges précis et concentrés ont fait le succès des précédentes rencontres en permettant aux acteurs publics et privés de la recherche d'échanger, d'augmenter leur confiance mutuelle et donc leurs chances de travailler ensemble •

THE CHALLENGE OF INFECTIOUS DISEASES

Infectious diseases, whether caused by viruses, bacteria or parasites, constitute a public health issue that in recent decades has become increasingly important and has raised new sets of challenges.

These diseases are of worldwide significance, claiming the lives of almost 17 million human beings each year, primarily in the southern hemisphere, and there seems little hope that this figure might decline in the next few years.

The combined effects of globalisation, evolution of infective agents and increasing resistance to antibiotics have seen both a spread in infectious diseases and an unfortunate increase in the number of victims.

Globalisation of infectious diseases

The expansion of these diseases has been favoured by increasing international exchange, human modification of the environment (deforestation, building of dams, and so on), inadequate urban planning (in particular, absence of adequate sanitation systems), demographic expansion, changes in behaviour, displacement of populations as a result of war and conflict, famines, and the absence of durable healthcare structures in many countries.

Although we know how to treat «old» diseases, they are becoming increasingly difficult to control due to the emergence of resistance. Two major diseases in this regard are tuberculosis and malaria.

More «modern» diseases such as HIV are spreading rapidly while new diseases continue to emerge with alarming regularity.

HIV continues to be a major health issue, not only in the southern hemisphere, with more than 2.7 million new infections each year, but also in the North, particularly among certain groups. In addition to the therapeutic aspects, research into screening, new preventive medical technologies and vaccines is of critical importance in the coming years.

Development of infectious agents: the emergence of new viruses and the spread of endemic areas

Since the start of the 1980s, we have witnessed the emergence of new infectious agents such as Legionella, SARS, Ebola and Marburg viruses, and H1N1 influenza, prompting fears of a major new epidemic comparable with the Spanish flu epidemic of 1918, which claimed 30 million lives.

Their emergence is enhanced by changes in the profile of these infectious diseases: they are now flourishing in areas where they did not previously exist. West Nile fever (WNF), which as its name suggests, originated

in the West Nile region in Uganda, and which was previously limited to the Old World, broke out in the city of New York at the beginning of this century before spreading to the remainder of the USA and parts of Canada in under 5 years.

Furthermore, many diseases are increasingly being understood to originate from infections, as it is the case for instance with gastroduodenal ulcer, Whipple's disease, MALT lymphoma and Kaposi's sarcoma.

Infectious agents, particularly of viral origin, are doubtless involved in the physiopathogenics of many chronic diseases that have not as yet been identified as infectious diseases in the standard sense of the term. This is true in oncology for instance, where it is known that a third of all cancers are related to viral or bacterial infectious agents, at least as regards their initial mechanisms.

Resistant and multi-resistant infectious agents

Bacteria have become increasingly resistant to antibiotics. The phenomenon of resistance to antibiotics resulting from the natural development of bacteria has now reached alarming proportions and cases of multiple resistance in which certain bacteria, simultaneously acquire resistance to several classes of antibiotics, are rapidly multiplying, as are therapeutic failure rates.
Diseases once thought to have been eradicated in the West are now making a comeback, with tuberculosis, meningitis and respiratory infections all gaining ground as the efficacy of available treatments dwindles.

HIV, hepatitis C virus (HCV), influenza viruses and other viruses are also developing resistance to treatment. HCV infection, a major cause of chronic hepatitis throughout the world, now affects more than 170 million people. In spite of progress, the currently available classes of drugs are unfortunately not effective in all patients, many of whom develop resistance to antivirals.

Given the ingenious nature of infectious agents and their ability to adapt to and nullify drug strategies, there is an increasing need for creativity in the fields of biology and, more precisely, microbiology, with exploration of all possible avenues of understanding of the microbial world and its interactions with other environments.

It is in fact these avenues of research investigated by French teams of international renown that will be presented today in a «8 minutes flat» session each, in front of 21 of the world's leading pharmaceutical companies.

These precise and focused exchanges have been instrumental to the success of the previous International Research Meetings, allowing actors from the public and private research spheres to exchange ideas, build mutual confidence and increase the possibilities together •

LES TRAVAUX DE RECHERCHE DES ÉQUIPES FRANÇAISES

Les maladies infectieuses ont une origine unique: l'agent infectieux, qui concentrait jusqu'à un passé récent, la grande majorité des travaux de recherche en infectiologie.
De nouvelles avancées technologiques dans les domaines de la génomique, de la génétique, de la protéomique… sont à l'origine de l'explosion des connaissances actuelles du monde microbien. Elles replacent notamment l'agent infectieux dans son environnement et dans le réseau de ses relations avec son hôte, mettant en lumière l'importance du microbiome, soit l'ensemble des gènes des espèces microbiennes vivant ensemble chez l'homme.
La dynamique des maladies infectieuses s'appréhende désormais comme la résultante de facteurs multiples et de leurs interactions, ce qui implique des approches de recherche allant des aspects de santé publique aux aspects très fondamentaux.
La recherche française en infectiologie a ainsi évolué vers une recherche multi disciplinaire et s'est structurée autour de champs thématiques plus à même de traiter cette nouvelle complexité des maladies infectieuses. La recherche clinique porte davantage sur l'évaluation thérapeutique de nouvelles molécules (ces aspects ne seront pas abordés au cours de ces journées).
Sur le plan organisationnel et en dehors de l'Institut Pasteur, il existe depuis quelques années, des regroupements au sein de grands centres en infectiologie.

Le champ génétique

Les travaux dans ce champ ont pour objectif de déterminer les bases génétiques de la prédisposition ou de la résistance aux maladies infectieuses chez l'homme.
Les équipes de **Laurent Abel** et de **Jean-Laurent Casanova** jouent de la synergie de deux approches : la génétique épidémiologique pour comprendre le déterminisme génétique des maladies infectieuses et la génétique moléculaire pour développer des outils immunologiques originaux, afin de parvenir à contrôler certaines maladies infectieuses communes (tuberculose, lèpre, maladies à pneumocoques) et défricher de nouveaux champs de connaissance sur les herpès virus et sur l'encéphalite herpétique.
L'équipe de **Lluis Quintana–Murci** se concentre quant à elle sur la détection de la sélection naturelle dans des gènes impliqués dans la réponse immunitaire afin d'identifier les gènes ayant joué un rôle majeur dans la défense de l'hôte humain contre les agents infectieux.

Le champ de la connaissance du monde microbien

Le microbiome humain concerne l'ensemble des gènes des espèces microbiennes vivant ensemble chez l'homme, par exemple dans son tube digestif, à la surface cutanée ou dans différents orifices naturels. L'analyse de leurs gènes, renvoie à un univers pratiquement inconnu, d'une complexité considérable et d'une dimension sans doute plus de 100 fois supérieure à celle du génome humain, soit plus de 3 millions de gènes à identifier et à comprendre.
L'analyse informatique des séquences devrait permettre ensuite d'identifier les fonctions des gènes bactériens puis d'explorer les interactions normales ou pathologiques entre la flore et l'hôte.
On peut s'attendre à des résultats assez originaux pour étudier par exemple les possibles corrélations entre flore intestinale et obésité ou maladie inflammatoire digestive et/ou la mise en évidence de nouveaux agents infectieux.
On peut aussi s'attendre à ce que la notion d'agent infectieux soit parfois remplacée par celle de flore microbienne pouvant tantôt être pathogénique ou symbiotique, selon sa composition, son équilibre, sa dynamique et ses interactions avec son hôte. Ce peut être le cas des maladies diarrhéiques ou des pneumonies qui sont les principales tueuses par infection.

C'est un champ en plein essor où intervient l'équipe de **Philippe Sansonetti** qui étudie les mécanismes de l'invasion et de la destruction inflammatoire de la barrière intestinale par la bactérie Shigella, l'agent de la dysenterie bacillaire, une infection tuant chaque année environ un million d'enfants dans les régions défavorisées de la planète. Au delà du décryptage du dialogue moléculaire établi entre la bactérie pathogène et l'épithélium intestinal qui mène à son invasion, ses travaux sont au cœur de la compréhension des mécanismes de l'homéostasie de la barrière intestinale, du commensalisme microbien et des maladies inflammatoires de l'intestin comme la maladie de Crohn et la Rectocolite hémorragique. Ils visent aussi au développement d'un vaccin contre la dysenterie bacillaire.
D'autres équipes décryptent d'autres aspects du monde microbien : ainsi celle de **Tham Mignot** étudie la motilité des bactéries et notament leur capacité à inverser très rapidement leur axe de polarité, tandis que l'équipe de **Félix Rey** s'intéresse à l'organisation moléculaire des virus, et que celle de **Yves Gaudin** étudie leur organisation structurale (notamment celle des rhabdovirus).

L'équipe de **Xavier Nassif** cherche à comprendre comment certaines bactéries franchissent la barrière vasculaire cérébrale, une voie qu'emprunte aussi l'équipe de **Guillaume Duménil** en s'attachant à découvrir comment les méningocoques utilisent la circulation sanguine pour se disséminer.
Enfin l'équipe de **Human Rezaei** s'est spécialisée dans l'étude des pathologies à prion.

Le champ des infections émergentes ou ré-émergentes

L'émergence de maladies nouvelles est un phénomène complexe et dynamique qui amène à s'intéresser aussi bien aux maladies elles-mêmes, qu'aux conditions de leur émergence et de la diffusion des agents infectieux responsables, sans oublier le rôle majeur joué par les changements, de tous ordres, qui interviennent dans les sociétés et leur environnement.

L'augmentation du nombre connu de microorganismes pouvant infecter l'homme et éventuellement d'être pathogènes a augmenté de façon considérable au cours des 20 dernières années.
Le nombre de bactéries connues (dans l'environnement, chez l'animal et chez l'homme) a été multiplié par 5.
Le nombre de bactéries connues capables d'infecter l'homme, identifiées au niveau moléculaire, va être multiplié par 10 et plus dans les années qui viennent. Le nombre de virus connus pour infecter l'homme devrait, au minimum, augmenter dans les mêmes proportions.

Plusieurs équipes ont orienté leurs travaux sur cet axe :
Durant les 10 dernières années, l'introduction du virus West Nile en 1999 aux Etats-Unis, l'épidémie de SRAS en 2002, la diffusion de l'épizootie H5N1 depuis 2003, l'épidémie de Chikungunya à La Réunion en 2006, ainsi que l'augmentation de l'exposition aux tiques et aux poux ont montré le besoin de développer nos connaissances.
Ce que font les équipes de **Didier Raoult** en développant à partir d'un microorganisme l'ensemble des aspects cliniques, épidémiologiques, physiopathologiques, diagnostiques et thérapeutiques in vitro et in vivo, de **Marc Lecuit**, en essayant de comprendre des mécanismes moléculaires de franchissement des barrières de l'hôte, de **Bruno Canard** en utilisant la virologie structurale pour mettre au point de nouveaux médicaments contres les virus émergents et d'**Eric Leroy**, en étudiant les affections virales émergentes présentes en Afrique centrale (dont la fièvre Ebola).
Parmi les autres axes de recherche développés : l'étude des interactions hôtes-vecteurs – agents pathogènes, (équipes de **Matteo Bonazzi** sur la fièvre Q et la Coxiella burnetti, de **Benoît Gamain** sur la malaria et de **Carla Saleh** sur l'étude in vivo de leurs interactions sous l'influence des micro RNA), l'analyse des différents sous-types génomiques de l'agent pathogène (équipe d'**Elena Levashinala**), la génomique

fonctionnelle et la génétique des micro-organismes (équipe de **Stéphanie Blandin**), les recherches vaccinales et thérapeutiques (équipe de **Camille Locht** sur les affections respiratoires bactériennes)

Le champ des infections chroniques

Les infections chroniques ne se limitent pas aux VIH et VHC, mais impliquent de nombreux pathogènes : viraux (Herpès Virus, HPV...), bactériens (H. pylori, mycobactéries…), parasitaires (leishmanioses, schistosomiase, trypanosomoses…).
Ces infections posent des problèmes particuliers en termes de réponse immunitaire, de développement de vaccin, d'efficacité thérapeutique médicamenteuse, de persistance de réservoir, de contrôle de la transmission (travaux de l'équipe de **François-Loïc Cosset** sur le cycle de vie du virus HCV)
Les recherches dans ce domaine englobent l'étude des relations hôte-pathogène (travaux de l'équipe de **Matthew Andrew** sur l'hépatite C, de l'équipe de **Thomas Baumert** sur les mécanismes moléculaires des interactions virus-hôte, de l'équipe de **Monsef Benkirane** sur le virus HIV-1 et de l'équipe de **Priscille Brodin** sur la tuberculose), les développements vaccinaux (travaux de l'équipe d'**Yves Levy** dans le domaine du HIV).

Le champ de la résistance aux anti-infectieux

La découverte des agents pathogènes de l'homme s'est bientôt accompagnée de la découverte d'anti-infectieux dont l'utilisation à grande échelle mène inéluctablement à la résistance due à l'adaptation impressionnante des microorganismes.

Les conséquences directes de l'émergence de ces résistances sont de plusieurs ordres :
■ Elles doivent être détectées pour être contenues, impliquant un soutien important des réseaux de surveillance et la création d'outils pour en assurer une détection encore plus rapide.
■ Elles doivent être comprises sur le plan moléculaire pour pouvoir élaborer de nouvelles stratégies thérapeutiques, diagnostiques, et concevoir de nouvelles molécules.
Ce sont les travaux auxquels se livrent les équipes de **Patrice Nordmann** sur les résistances émergentes aux antibiotiques dans tous leurs aspects, génétique, biochimique, épidémiologique … , **de Laurent Gutmann** avec l'étude des enzymes de la barrière cellulaire impliquées dans les phénomènes de résistance, de **Marie-Cécile Ploy** avec le rôle des intégrons dans le développement des phénomènes de multi-résistances aux antibiotiques chez certaines bactéries, de **Ivo Gomperts Boneca** avec l'étude de la biologie et de la génétique de la paroi bactérienne et de **Hannu Myllykallio** avec la découverte de nouvelles molécules ciblant des enzymes impliquées dans des agents pathogènes.

Le champ de l'immunologie et de la vaccination

Le système immunitaire a pour première fonction de permettre à un organisme pluricellulaire de maintenir la cohérence des cellules qui le constituent et d'assurer son intégrité en éliminant ses propres constituants abîmés ou altérés et les agents infectieux auquels il est exposé. Une des clés du bon fonctionnement du système immunitaire est de pouvoir opérer la reconnaissance entre les constituants normaux de l'organisme et ceux qui doivent être éliminés.
A cette fin, il utilise deux stratégies :
■ La première correspond à l'immunité innée ou immunité naturelle dont la mise en jeu est immédiate. C'est le thème des travaux de l'équipe de **Nicolas Manel** qui utilise le virus de l'immunodéficience humaine (VIH) comme modèle afin de comprendre les principes fondamentaux et généraux de l'immunité innée. D'autres travaux sont menés par les équipes de **Jean-Marc Reichhart** et de **Hidehiro Fukuyama** pour comprendre cette immunité innée en utilisant le modèle de la drosophile et par l'équipe d'**Eric Vivier** et de **Sophie**

Ugoloni avec le modèle des cellules NK. L'équipe de **Carole Peyssonnaux** étudie le rôle des facteurs induits par l'hypoxie dans l'immunité innée.

■ La deuxième correspond à l'immunité adaptative : elle utilise les lymphocytes T et B, portant à leur surface des récepteurs d'antigène. Cet axe centré sur les propriétés des lymphocytes T est approfondi par l'équipe de **Matthieu Allez** dans le cadre de ses travaux sur les maladies inflammatoires de l'intestin et par l'équipe de **Nicolas Blanchard** pour ses travaux sur la toxoplasmose.

L'équipe de **Brigitte Autran** mène ses travaux de manière transversale en recherchant de nouveaux biomarqueurs de l'immunité et en développant de nouvelles voies utilisant l'immunologie pour contrôler la progression des affections virales type HIV, HCV… Elle travaille en étroite collaboration avec l'équipe de **Behazine Combadière** qui développe de nouvelles approches pour stimuler l'autre ligne de défense spécialisée de l'organisme, celle constituée par les lymphocytes T.
Les équipes de **David Klatzmann** et d'**Eliane Piaggio** tentent d'étudier, de comprendre, d'améliorer et de mettre en œuvre, par des études pré-cliniques dans des modèles animaux, de nouvelles stratégies vaccinales contre les infections virales ou les cancers et s'efforcent de transférer ses connaissances vers des études cliniques chez l'homme.
L'équipe de **Gérard Eberl** a emprunté une autre voie de recherche, celle de la compréhension de nos interactions avec nos microbes commensaux tandis que l'équipe de **Robert Ménard** se concentre sur la lutte contre la malaria en étudiant la toute première phase de l'infection, que celle de **Maria-Isabel Thoulouze** étudie de nouveaux éléments infectieux, les biofilms viraux, (nouveaux moyens de dissémination des virus) et que celle d'**Olivier Schwartz** analyse la multiplication du HIV et son interaction avec le système immunitaire. L'équipe de **Jean-Michel Pawlotsky** se concentre sur l'hépatite virale chronique.

Toutes les voies sont à explorer pour lutter contre les agents infectieux et ceci, d'autant plus qu'ils sont probablement impliqués dans la physiopathogénie initiale de nombreuses pathologies chroniques qui ne sont pas encore identifiées comme des maladies infectieuses au sens classique du terme.
Ceci est vrai en cancérologie par exemple, où l'on sait déjà qu'environ un tiers des cancers serait lié, en tout cas dans les mécanismes initiaux, à un agent infectieux viral ou bactérien. Les relations existant entre l'obésité et les modifications du microbiome intestinal constituent un autre exemple. Le diabète et certaines pathologies cardio-vasculaires sont aussi liés à des infections.
La microbiologie environnementale qui prend en compte la diversité des agents infectieux, des réservoirs et vecteurs et des conditions du milieu doit être une démarche à encourager car elle permettra de comprendre comment et à quels niveaux de l'interaction pathogènes - vecteurs/réservoirs-hôtes, les nouveaux modes d'utilisation ou les perturbations de l'environnement peuvent aboutir à la transmission à l'homme. C'est tout le sens des travaux de l'équipe de **François Dabis** qui met au point et évalue des interventions biomédicales utilisables en santé publique et destinées, d'une part à prévenir la transmission du VIH et, d'autre part, à optimiser la prise en charge globale de cette infection dans les pays à ressources limitées.

Le potentiel émergent et épidémique des maladies infectieuses nécessite une certaine forme d'organisation de la recherche qui soit adaptable à cette réalité. La gestion des risques infectieux, avec la multiplication des échanges mondiaux et de la circulation des agents infectieux (l'exemple le plus récent étant la diffusion du virus H1N1 nord-américain) qui ajoute une dimension supplémentaire spécifique aux risques infectieux, nécessite de renforcer les collaborations européennes et internationales.

C'est tout l'enjeu de ces Troisièmes Rencontres Internationales de Recherche •

THE WORK OF FRENCH RESEARCH TEAMS

Infectious diseases spring from a single source: infectious agents, upon which the vast majority of research in infectious diseases has tended to focus until recently.
Technological progress in the fields of genomics, genetics, proteomics and so on, has led to enormous strides in our knowledge of the microbial world. In particular, these fields of investigation have situated infectious agents in their environment and within the network of relationships with their hosts, shedding light on the importance of the microbiome, in other words the entire collection of genes of microbial species that co-exist with humans.
The dynamics of infectious diseases can now be understood as the outcome of multiple factors and their interaction, resulting in a research approach ranging from public health aspects to fundamental science aspects.
French research into infectious diseases has thus become a multidisciplinary affair organised around a number of fields able to deal with the newfound complexity of such illnesses. Meanwhile, clinical research per se is more concerned with the therapeutic evaluation of new drugs, and these aspects will not be touched upon during the present meeting.
In terms of organisation, outside the Institut Pasteur, some major regrouping has taken place within the major infectious diseases centres over the last few years.

The field of genetics

The aim of research in this field is to determine the genetic basis of predisposition or resistance to infectious diseases in humans.
The research teams of **Laurent Abel** and **Jean-Claude Casanova** benefit from the synergy of two separate approaches: that of epidemiological genetics to understand the genetic determinism of infectious diseases, and that of molecular genetics to develop original immunological tools in order to control certain common infectious diseases (tuberculosis, leprosy, pneumococcal diseases) and to open up new avenues of knowledge concerning herpes virus and herpetic encephalitis.
The team of **Lluis Quintana-Murci** is dedicated to the detection of natural selection in the genes involved in immune response in order to identify the genes playing a major role in the defence of the human host against infectious agents.

The field of knowledge of the microbial world

The human microbiome is made up of all the genes of microbial species living together with humans, for instance in the human gut, at the surface of the skin and in different natural orifices. Analysis of these genes is providing glimpses of a hitherto practically unknown universe, of extreme complexity and doubtless 100 times larger than the human genome, with more than 3 million genes waiting to be identified and understood.
Computer analysis of sequences should allow identification of the functions of bacterial genes followed by investigation of normal and pathological interactions between flora and host.
Some unexpected results are likely to be thrown up that will facilitate the study of possible correlations between the intestinal flora and obesity or inflammatory intestinal diseases for example and/or the identification of new infectious agents. It is also probable that the notion of infectious agent will on occasion be replaced by that of microbial flora endowed with both pathogenic and symbiotic properties, depending on their composition, equilibrium, dynamics and interactions with their host organism. This may be the case for instance with diarrhoeal diseases or pneumonia, which are the primary killers among infectious diseases.
This field is expanding rapidly and is being investigated by the teams of **Philippe Sansonetti**, which is studying the mechanisms of invasion and inflammatory destruction of the intestinal barrier by Shigella, the

bacterial agent responsible for bacillar dysentery, an infection that kills around one million children each year in the poorer regions of the world. In addition to decrypting the molecular dialogue between pathogenic bacteria and the intestinal epithelium which results in invasion of the latter, their studies are central to understanding of the mechanisms of homoeostasis of the intestinal barrier, of microbial commensalism and of inflammatory intestinal diseases such as Crohn's disease and haemorrhagic rectocolitis. They are also seeking to develop a vaccine against bacillar dysentery.

Other teams are attempting to shed light on other aspects of the microbial world:
thus, the team of **Tham Mignot** is studying bacterial motility, and especially the ability of these organisms to very rapidly change their axis of polarity, while the team of **Félix Rey** is focusing on the molecular organisation of viruses, and that of **Yves Gaudin** is studying their structural organisation (particularly that of rhabdoviruses). The team under **Xavier Nassif** is seeking to understand how certain bacteria cross the blood-brain barrier, an area also being investigated by the team of **Guillaume Duménil**, which is attempting to discover the way in which meningococci use the blood circulation to spread.
Finally, the team of **Human Rezaei** is specialised in the study of prion diseases.

The field of emerging and re-emerging infections

The emergence of new diseases is a complex and dynamic phenomenon and calls for study of the diseases themselves as well as the conditions of their emergence and the spread of the causative infectious agents, without overlooking the key role played by all types of change in different societies and in their environment. There has been a considerable increase in the last 20 years in the number of microorganisms known to be capable of infecting humans and causing disease. The number of known bacteria (in the environment, in animals and in humans) has increased 5-fold. The number of known bacteria able to infect humans and identified at the molecular level will increase by a factor of 10 or more in coming years. The number of viruses known to infect humans is expected to increase by at least as much.
A number of teams are focusing their research on this area:
■ Mechanisms of emerging and re-emerging infections, whether of zoonotic or non-zoonotic origin. Over the last 10 years, the entry of the West Nile virus into the US in 1999, the SARS epidemic of 2002, the spread of the H5N1 epizootic since 2003, the Chikungunya fever epidemic in Reunion Island in 2006, as well as increased exposure to ticks and lice, have all highlighted the need to improve our knowledge. This is exactly what is being done by the teams of **Didier Raoult**, which is working on the clinical and epidemiological, physiopathological, diagnostic and therapeutic aspects in vitro and in vivo of a single microorganism, of **Marc Lecuit**, which is seeking to understand the molecular mechanisms responsible for penetration of host barriers, of **Bruno Canard**, which is using structural virology to develop new drugs against emerging viruses, and of **Eric Leroy,** which is studying emerging viral diseases in central Africa (including Ebola fever). Other areas of current research include the study of interactions between host-vector and pathogenic agents (the teams of **Matteo Bonazzi** for Q fever and Coxiella burnetti, of **Benoît Gamain** for malaria, and of **Carla Saleh** for the in vivo study of their interactions under influence of micro RNA), analysis of the different genomic subtypes of pathogenic agents (the team of **Elena Levashinala**), the functional genomics and genetics of microorganisms (the team of **Stéphanie Blandin**), and vaccinal and therapeutic research (the team of **Camille Locht** investigating bacterial respiratory diseases).

The field of chronic infections

Chronic infections are not limited to HIV and HCV but involve many pathogens, whether viral (herpes virus, HPV, etc), bacterial (H. pylori, mycobacteria, etc) or parasitic (leishmaniasis, schistosomiasis, trypanosomiasis, etc). These infections pose special problems in terms of immune response, development of vaccines,

drug efficacy, persistence of the reservoir, and control of transmission (studies by the team under **François-Loïc Cosset** regarding the life cycle of the HCV virus).
Research in this field covers the study of host-pathogen relations (studies by the team of **Matthew Andrew** concerning hepatitis C, by the team of **Thomas Baumert** on molecular mechanisms of virus-host interactions, by the team of **Monsef Benkirane** on HIV-1 virus, and by the team of **Priscille Brodin** on tuberculosis), and the development of vaccines (studies by the team of Yves Levy in the field of HIV).

The field of resistance to anti-infective agents

The discovery of human pathogens is rapidly followed by the discovery of infective agents, widespread use of which inevitably leads to resistance as a result of the remarkable adaptive capacity of microorganisms.
There are a number of direct consequences of the emergence of such resistance:

- they must be detected if they are to be controlled, which means providing considerable support to surveillance networks and creating tools to ensure even faster detection;
- they must be understood in molecular terms in order to enable the creation of new therapeutic and diagnostic strategies and the design of new drugs.

These areas are being investigated by the teams of **Patrice Nordmann**, working on the genetic, biochemical and epidemiological aspects (among others) of emerging resistance to antibiotics, of **Laurent Gutmann**, which is studying the role in resistance of cell-barrier enzymes, of **Marie-Cécile Ploy**, which is investigating the role of integrons in the development by certain bacteria of multiple resistance to antibiotics, of **Ivo Gomperts Boneca**, with investigation of the biology and genetics of bacterial walls, and of **Hannu Myllykallio**, with the discovery of new substances targeting enzymes implicated in pathogenic agents.

The field of immunology and vaccination

The primary function of the immune system is to allow a multicellular organism to maintain coherence of its constituent cells and to ensure its integrity through the eradication both of damaged and impaired components and of the infectious agents to which it is exposed. A key factor in the proper functioning of the immune system is the ability to distinguish between normal body components and those which must be eliminated.
To this end, it employs two strategies:

- the first is innate or natural immunity, which is immediately operational. This is the topic of studies being undertaken by the team of **Nicolas Manel**, which uses the human immunodeficiency virus (HIV) as a model in order to understand the fundamental and general principles of innate immunity. Other studies are being conducted by the teams of **Jean-Marc Reichhart** and **Hidehiro Fukuyama** to understand innate immunity using the Drosophila model, and by the team of Eric Vivier and Sophie Ugoloni using a natural killer cell model. The team of **Carole Peyssonnaux** is investigating the role in innate immunity of factors induced by hypoxia.
- the second is adaptive immunity: this system uses T and B lymphocytes, which carry antigen receptors on their surface. This work focusing on the properties of T cells is being investigated more closely by the team **Matthieu Allez** as part of its research into inflammatory intestinal diseases, and by the team of **Nicolas Blanchard** in their of work on toxoplasmosis.

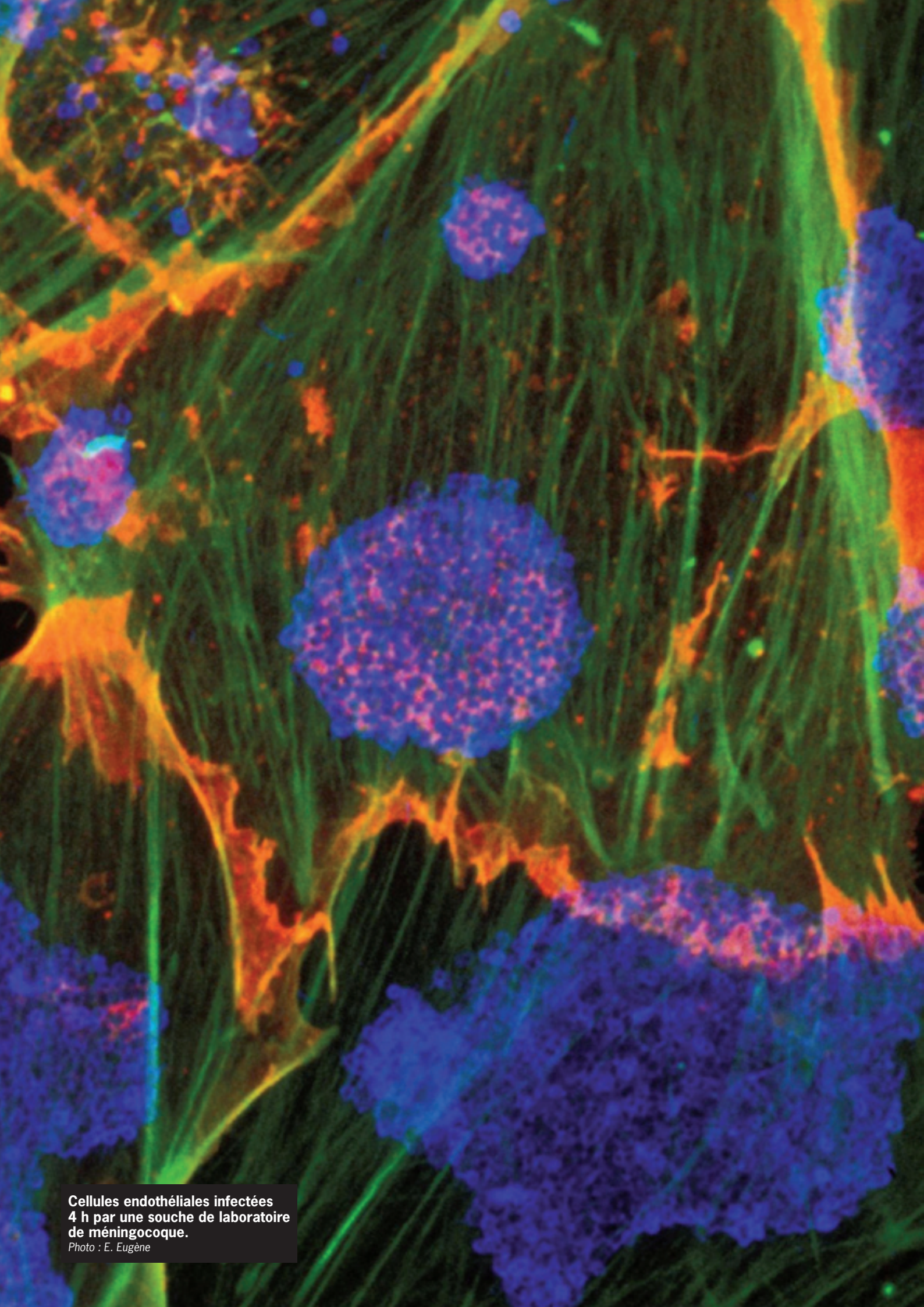
The team of **Brigitte Autran** is carrying out transverse studies to identify new biomarkers for immunity and is developing new methods using immunology to control the progression of viral diseases such as HIV, HCV and so on. This team is working in close collaboration with the team of **Behazine Combadière**, which is developing new approaches to stimulate the body's other specialised line of defence, consisting of T cells, and with the teams of **David Klatzmann** and of **Eliane Piaggio**, which are seeking, by

means of preclinical studies in animal models, to study, understand, optimise and implement new vaccinal strategies against viral infections and cancers while attempting to inject their knowledge into clinical trials in man.
Meanwhile, the team of **Gérard Eberl** is busy in another field of research, namely understanding our interactions with our own commensal microbes, while the team of **Robert Ménard** is dedicated to the fight against malaria through study of the very first phase of the infection and the team of **Maria-Isabel Thoulouze** is studying new infectious elements, viral biofilms, (new modes of viral dissemination). The team of **Olivier Schwartz** is working on the multiplication of the HIV virus and its interaction with the immune system, and the team of **Jean-Michel Pawlotsky** is focused on chronic viral hepatitis.

All avenues must be explored in the fight against infectious agents, particularly where they are likely to be involved in the initial physiopathology of many chronic diseases that have not yet been identified as infectious diseases in the standard sense of the term.
This is true in oncology for instance, where around one third of cancers are already known to be associated with a viral or bacterial infectious agent, at least as regards the initial mechanisms. A further example is the relationship between obesity and changes in the intestinal microbiome. Diabetes and certain cardiovascular diseases are also associated with infections. Environmental microbiology, which examines the diversity of infectious agents, of reservoirs and of vectors, as well as environmental conditions, is an approach that is to be encouraged since it provides an understanding about how and to what degree transmission to humans is affected by interaction between pathogens-vectors and reservoirs-hosts, by disturbances within the environment. These considerations are at the heart of research undertaken by the team of **François Dabis**, which is developing and assessing biomedical interventions for use by public health bodies, both to prevent HIV transmission and to optimise global management of this infection in countries with limited resources.

The threat of emergence and epidemic outbreak of infectious diseases requires a certain degree of organisation of research efforts, which must be capable of adjusting to the changing terrain. The management of infectious risk, as increasing global exchange and circulation of infectious agents (as in the spread of North American H1N1 virus) continue to add further complexity to existing risks, stands in need of closer European and international collaboration.

The promotion of such collaboration is the express aim of this Third International Research Meeting •



Cellules endothéliales infectées 4 h par une souche de laboratoire de méningocoque.
Photo : E. Eugène

ABBOTT

Company Size: 90,000 employees globally
R&D Staff: 4000+ people
Annual sales 2010: $ 35.2 billion

Abbott has a longstanding history as a leader in the development of antiviral therapeutics active against a variety of life threatening pathogens.
Abbott was responsible for the discovery and development of both Norvir (ritonavir) and Kaletra (lopinavir/ritonavir) for the treatment of HIV infection.
Abbott scientists pioneered the concept of pharmacokinetic enhancement of HIV protease inhibitors with ritonavir to improve their convenience, efficacy, and resistance barrier. Kaletra still remains one of the most widely utilized HIV protease inhibitors around the world.
In collaboration with MedImmune, Abbott is involved in ongoing development of Synagis, a monoclonal antibody directed against respiratory syncitial virus (RSV) that is used as prophylaxis in high risk infant populations.
Abbott is actively pursuing development of direct acting antiviral agents leveraging multiple mechanisms of action against hepatitis C infection and «has a broad and deep pipeline in this field», supporting investigation of a variety of novel combination treatment regimens.
Additionally, Abbott is an established leader in antiviral diagnostics for HIV and hepatitis B/C infection, including serologic and molecular testing modalities

Product Portfolio in the Area

• Kaletra (lopinavir/ritonavir) for the treatment of HIV infection
• Norvir (ritonavir) for the treatment of HIV infection, also commonly employed as a pharmacokinetic enhancer for other HIV protease inhibitors
• Synagis has been co-developed by Abbott and Med-Immune (Astra Zeneca)
Abbott is the MA's holder for Synagis in Europe

R&D Focus Portfolio and Prospective in this Area

Direct acting antivirals for the treatment of chronic HCV infection
- ABT-450/ritonavir – HCV protease inhibitor with pharmacokinetic enhancement
- ABT-333 and ABT-072 – HCV non nucleoside polymerase inhibitors
- ABT-267 – HCV NS5A inhibitor

Places of Worldwide Investigations

North America, EU including France, Central Europe, Latin America, Australasia

R&D at Abbott

■ Pharmaceutical pipeline

Abbott takes a balanced approach to pharmaceutical R&D.In 2010, we made progress advancing our internal pipeline and added late-stage pipeline opportunities through licensing and acquisitions. Following are highlights:

Hepatitis C

The hepatitis C virus (HCV) affects approximately 180 million people worldwide. It can lead to long-term complications, including severe scarring of the liver, liver cancer or death. The current standard of care for most HCV infections requires 48 weeks of treatment and leads to a cure in fewer than half of patients. Our goal is to find new treatment options that shorten the duration of treatment, improve tolerability and increase cure rates.

Our discovery and development of protease inhibitors for the treatment of HIV positions us well for similar success in HCV. The HCV treatment landscape is expected to change rapidly over the next several years, and this market will evolve considerably even after the next generation of therapies comes to market. Abbott is one of a few companies with several drug classes in clinical development — including protease, polymerase and NS5A inhibitors. We are also studying multi-drug combinations to identify optimal treatments for a broad range of HCV patients.

Immunology
Autoimmune diseases impact millions of people worldwide. They develop when an individual's immune system attacks his own organs, tissues and cells. Our scientific experience in developing Humira serves as a foundation for our immunology research.
Humira, Abbott's biologic for six different autoimmune diseases, is in development for additional indications and under U.S. and European regulatory review for ulcerative colitis, an inflammatory condition of the large intestine.
Our combination biologic platform, called DVD-Ig (dual-variable domain immunoglobulin), shows potential in complex conditions such as cancer and autoimmune diseases, where multiple pathways are involved. The ultimate goal of this technology is to improve efficacy beyond current treatments.

Neuroscience
Abbott is developing treatments to address schizophrenia, multiple sclerosis (MS), Alzheimer's disease, chronic pain and Parkinson's disease, conditions that impact millions of patients worldwide.

Multiple Sclerosis
Multiple sclerosis is a disease of the central nervous system that causes lesions in the brain and spinal cord. It affects more than a million people worldwide. Daclizumab is a humanized antibody, in development with a partner, for the treatment of Relapsing Remitting MS, the most common form of the disease. The Phase III study, currently under way, is designed to determine the efficacy of daclizumab in preventing MS relapse.

Alzheimer's Disease
Alzheimer's disease gradually destroys a person's memory and ability to learn, communicate and perform daily activities. While current therapies may help patients maintain cognitive abilities or control symptoms, there is still tremendous room for improvement in the treatment of these patients. Abbott has a number of compounds in development targeting new therapeutic approaches for this disease.

Pain
Chronic pain affects more than 70 million people in the United States and Europe, and up to 30 percent of patients receive inadequate pain relief with current therapies. Abbott is pursuing a number of approaches for the treatment of pain.

Parkinson's Disease
Parkinson's disease is a degenerative neurological disorder that affects more than 5 million people worldwide. Duodopa, currently approved in Europe for advanced Parkinson's disease, is in Phase III development in the United States.

Women's Health
Endometriosis and uterine fibroids are conditions associated with a number of symptoms including menstrual pain and infertility. There continues to be significant need for effective treatments to address both of these highly prevalent conditions.

Elagolix may reduce symptoms through partial suppression of estrogen. It is in late-stage development for endometriosis-related pain and in early-stage development for uterine fibroids.

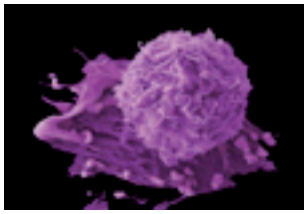
Chronic Kidney Disease

Chronic kidney disease (CKD), the progressive loss of kidney function, affects millions of people around the world. Prevalence is expected to increase in coming years, driven by higher incidence of diabetes, hypertension, obesity and an aging population. Current treatments slow the progression of CKD; however, many patients ultimately progress to end-stage renal disease and dialysis. The five-year survival rate for CKD is lower than any forms of cancer. Abbott has two late-stage compounds in development for the treatment of CKD.

Bardoxolone, in late-stage development, is a first-in-class compound that could change the treatment landscape for CKD, possibly preventing patients from progressing to later stages of the disease and dialysis. Abbott has exclusive rights to develop bardoxolone outside the United States, excluding certain Asian markets.

Atrasentan, currently in Phase II studies, is being developed to help slow CKD progression in patients with diabetic kidney disease.

Oncology



Cancer causes one in every eight deaths worldwide. As the population ages, the need for effective cancer treatments will continue to increase. Our pipeline includes a number of molecules in clinical development for more than a dozen different cancer types, including some of the most widespread and difficult to treat.

Our acquisition of Facet Biotech Corporation included several oncology collaborations, including elotuzumab, which is a humanized antibody in late-stage development for multiple myeloma, a type of cancer found in bone marrow. Elotuzumab may represent a new approach to treating the disease, as it allows the immune system to selectively kill myeloma cells.

Abbott's PARP (Poly (ADP-ribose) polymerase) inhibitor in development interrupts the DNA repair process in tumor cells and may enhance the effectiveness of current cancer therapies, such as chemotherapy.
It's being studied in a variety of cancer types, including breast cancer.

Our multitargeted kinase inhibitor is thought to stop the progression of cancer by cutting off the blood supply to a tumor. It is in clinical trials for solid tumors, including a Phase III study for liver cancer.

Abbott's inhibitor of Bcl-2 proteins represents a new class of investigational drugs that attacks cancer cells in a fundamentally new way — by accelerating their death. It's in Phase II development for several cancer types.

ABBOTT
Scott C. Brun, M.D.
Divisional Vice President, Infectious Disease Development

BIOGRAPHY

Training and academic background

1989	B.S. Biochemistry (Summa Cum Laude), University of Illinois, Urbana-Champaign
1993	M.D., The Johns Hopkins University School of Medicine
1994 - 1997	Residency in Ophthalmology, Massachusetts Eye and Ear Infirmary, Harvard Medical School

Industry Background

1997 - 1998	Abbott Physician Development Program
1998 - 2002	Medical Director, Antiviral Venture, Abbott – Kaletra Development Team responsible for initial global registration of lopinavir/ritonavir
2001 - 2002	Medical Director, Quinolone Antimicrobial Development, Abbott
2002 - 2004	Global Project Head, Antiviral Development, Abbott
2004 - 2006	Divisional Vice President, Anti-infective Development (including clarithromycin), Abbott
2006 - 2008	Divisional Vice President, Antiviral and Renal Development, Abbott
2008 - 2009	Divisional Vice President, Antiviral and Early Immunology Development, Abbott
2009 - current	Divisional Vice President, Infectious Disease Development, Abbott

Areas of research interest

• HIV clinical trials, resistance development and implications, immune reconstitution during HIV therapy, adverse events related to HIV therapy
• HCV clinical development including novel combinations of direct acting antiviral agents, resistance development and implications

CONTACTS

Scott C. Brun, M.D.
Divisional Vice President
Infectious Disease Development
Global Pharmaceutical Research and Development
Abbott
200 Abbott Park Road, Dept. R48U, Bldg Ap30-3
Abbott Park IL 60064 USA

Tél. : +847 935 1293

ASTRAZENECA

Company Size: 61,000 employees
R&D Staff: 15,700
Active in more than 100 countries
Annual sales 2010: $33.3B

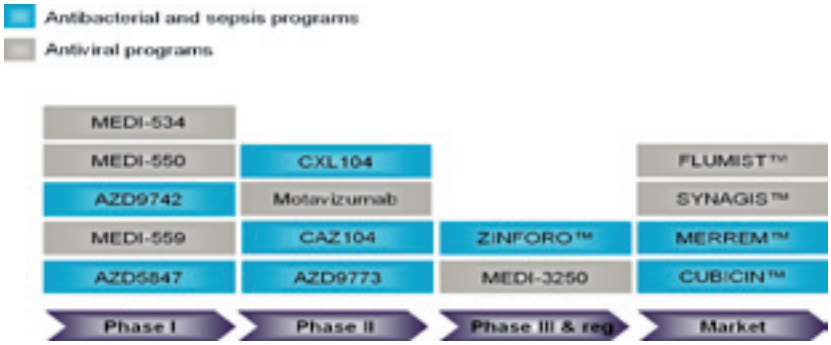
AstraZeneca is committed to use the best science and technology to invent and acquire, produce and distribute innovative medicines that make a meaningful difference to people's health around the world. With a core R&D investment of $4.2B in 2010, and a clinical pipeline of over 90 products, we are transforming our discovery and development organizations to increase productivity. In the past year, we have formed nine Innovative Medicines units, appointed new world-class leaders, and confirmed the best internal candidates in leadership positions. We also prioritized our internal discovery activities in six major therapy areas where we believe there is the greatest potential: Cardiovascular / Gastrointestinal disorders, Oncology, Respiratory & Inflammation, Neuroscience, and Infection.

Our Infection vision is to reduce the world-wide burden of infectious diseases, by delivering customer-valued, novel products for the treatment and prevention of serious infections.

AstraZeneca Infection Marketed Products

Synagis (palivizumab) is a humanized MAb for the prevention of serious lower respiratory tract disease caused by respiratory **syncytial virus (RSV)** in pediatric patients at high risk of acquiring RSV disease.
Merrem/Meronem (meropenem) is a leading carbapenem anti-bacterial used for the treatment of serious Gram-negative infections in hospitalized patients (licensed from Dianippon Sumitomo).
FluMist is a trivalent live, attenuated nasally delivered vaccine approved for the prevention of disease caused by influenza virus subtypes A and B in eligible children and adults. FluMist is now approved for eligible individuals in the US, South Korea, Canada, Hong Kong, Israel, Macau and Brazil.
Cubicin (daptomycin) is a cyclic lipopeptide anti-bacterial used for the treatment of serious Gram-positive infections in hospitalized patients, including MRSA (licensed from Cubist Pharmaceuticals, sold by AZ in selected territories in Asia, Europe and the Middle East).

Infection Portfolio and R&D Sites



• We aim to build a leading infectious diseases franchise through continued commercialization of Synagis, Merrem, FluMist/Fluenz and Cubicin™, as well as through the development of new products such as Zinforo (ceftaroline).
• Our Infection development pipeline (as of January 2011) comprises 11 assets from Phase 1 to registration, and demonstrates our strong commitment to novel, life-saving anti-infectives.

• Our global network of R&D sites allows our scientists to drive innovation, collaborate with internal and external partners, and support our discovery efforts in the fields of bacterial infection, respiratory viruses, and neglected diseases. Our small molecule sites, located in Waltham, Massachusetts and Bangalore, India, work in close collaboration to discover and develop new treatments for bacterial infections, neglected diseases, and respiratory viral infections. Our discovery platforms for biologics and vaccines (MedImmune) are located in Gaithersburg, Maryland and Mountain View, California.
• As part of our commitment to make a contribution to improving health in the developing world, we are working to find new and improved treatments for tuberculosis (TB). Our Bangalore facility is recognized as the largest corporate R&D effort focused on TB. AZD5847, an oxazolidinone discovered at AstraZeneca, shows potent activity against TB in preclinical models, and is currently ongoing Phase 1 trials.

ASTRAZENECA
Steven J. Projan, Ph D, FAAM.
Senior Vice President

BIOGRAPHY

Training and academic background

Dr. Projan attended and graduated from M.I.T. (S.B. 1974) and Columbia University (M.A., M.Phil. & Ph.D. 1980)

Industry Background

Steve Projan joined MedImmune 2010 as S.V.P. R&D and Innovative Medicines Head for Infectious Diseases & Vaccines following two years at Novartis as Global Head of Infectious Diseases and 15 years at Wyeth.
At Wyeth Dr. Projan was the Biology Team Leader of the Glycylcycline Discovery Team that produced tigecycline, an antibacterial drug for the treatment of drug resistant bacterial infections.
Prior to Dr. Projan's work in industry he had a 14 year academic career at the Public Health Research Institute and has over 110 publications to his credit.

CONTACTS

Steven J. Projan, Ph D, FAAM
Senior Vice President
R & D and Innovative Medicines
Head for Infectious Diseases and Vaccines
MedImmune
1 MedImmune Way 25B21
Gaithersburg MD 20878, USA

Tél. : + 1 301 398 6600
Email. : ProjanS@MedImmune.com

ASTRAZENECA
Manos Perros, Ph. D.
Infection Innovative Medicines (small molecules) Head

BIOGRAPHY

Training and academic background

1989 Licence, Chemistry, Honours, Université Libre de Bruxelles (Belgium)
1989 Agrégation a l'Enseignement Secondair Superieur Chemistry, Université Libre de Bruxelles (Belgium)
1994 Honours Doctoral Laureate (Ph.D.) in Biochemistry, Université Libre de Bruxelles (Belgium), Institut Pasteur de Lille (France) and DKFZ (Germany)

Industry Background

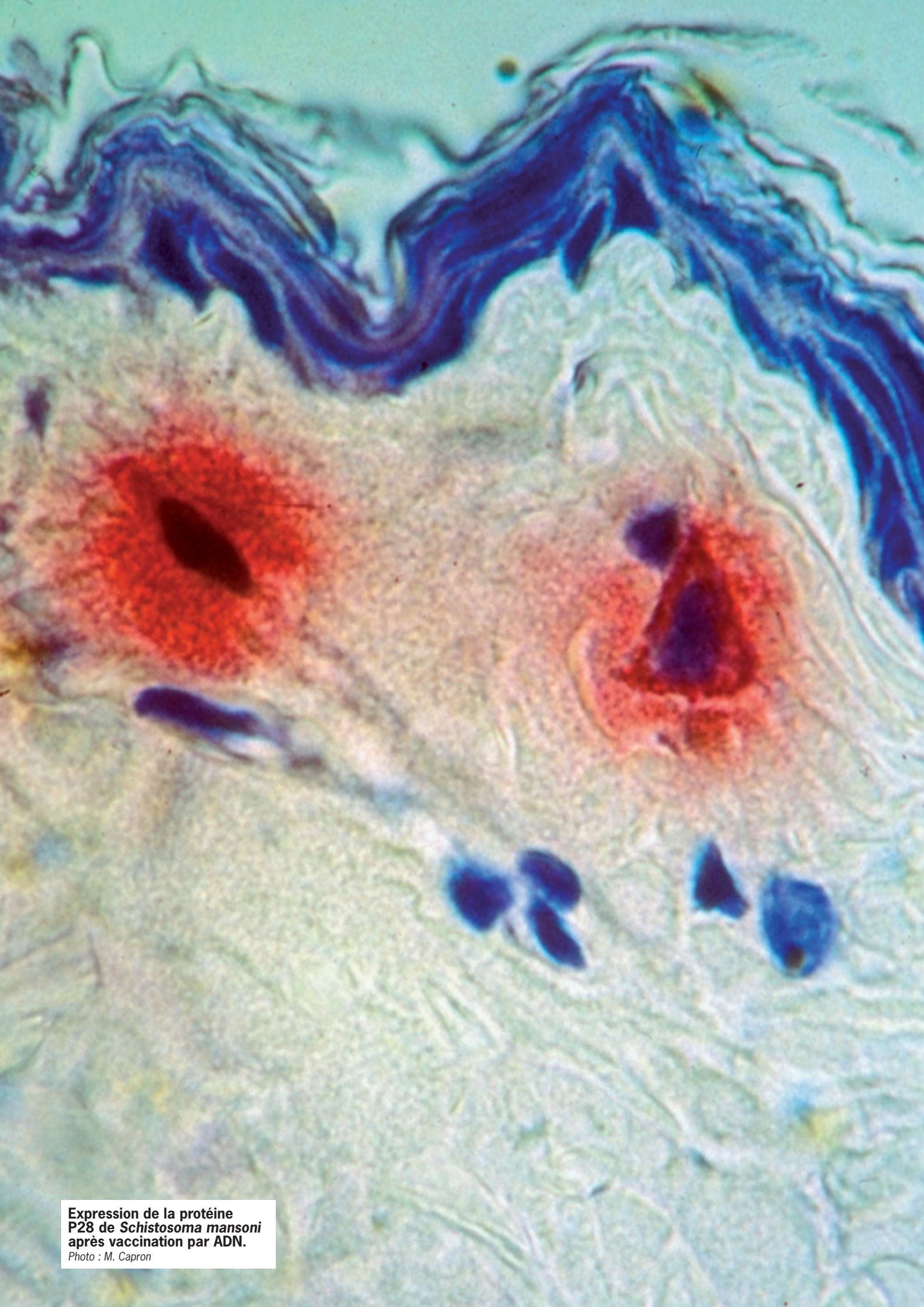
2010–present Infection Innovative Medicines (small molecules) Head, AstraZeneca
2009–2010 Director of the Novartis Institute of Tropical Diseases
2007–2009 VP, Pfizer Global R&D & Chief Scientific Officer, Antivirals
2005–2007 Senior Director, Pfizer Global R&D, Head of Pain, Urology and Gynaecology Biology
2001–2005 Senior Director, Pfizer Global R&D – Head of Infectious Diseases Biology
1996–2001 Principal Scientist, Pfizer Central Research, Antiviral Discovery Biology

Areas of research interest

- Infectious diseases
- Neglected tropical diseases
- Antiviral and antibacterial discovery

CONTACTS

Tél. : +1 781-839-4426
Email. : manos.perros@astrazeneca.com



Expression de la protéine P28 de *Schistosoma mansoni* après vaccination par ADN.
Photo : M. Capron

BOEHRINGER INGELHEIM

Company Size: 41,500 employees
Corporation: Boehringer Ingelheim GmbH, Germany
R&D Staff: 6,900 scientists working in cross disciplinary teams within our global R&D network

Boehringer Ingelheim has a longstanding commitment and history of success in drug discovery and development in Virology having introduced nevirapine (Viramune™), the first non-nucleoside reverse transcriptase inhibitor for the treatment of HIV-1/AIDS in 1995. Other antiretrovirals developed and introduced by BI include the first non-peptidic HIV-1 protease inhibitor tipranavir (Aptivus™). Boerhinger Ingelheim has a well established research center in Laval, Canada, dedicated to virology research since the early 1990's, and today it remains focused on infectious diseases research and to developing new therapies for diseases with a high unmet medical need.

Product Portfolio in the Area

- Nevirapine (Viramune™), the first non-nucleoside reverse transcriptase inhibitor for the treatment of HIV-1/AIDS.
- Tipranavir (Aptivus™) the first non-peptidic HIV-1 protease inhibitor

R&D Focus Portfolio and Prospective in this Area

- HCV direct acting antivirals
  - BI 201335: HCV protease inhibitor, phase III
  - BI 207127: HCV polymerase inhibitor, phase IIb
- HIV antiretrovirals
  - BI 224436: non-catalytic site HIV-1 integrase inhibitor, phase I
- Current Research and Partnering Focus
  - Targets involved in the replication of human viral pathogens, especially CMV and respiratory viruses (e.g. rhinovirus, RSV and influenza)
  - Therapeutic approaches to enable clearance of latent or persistent viral infections (e.g. HIV and HBV)
  - Targets involved in the reactivation of persistent viral infections (e.g. HSV and JCV)
  - Modulation of the innate or adaptive immune response to infections (defined MOA)
  - Antibacterial target technologies with novel modes of action and potential for addressing serious Gram negative or Gram positive infections

Places of Worldwide Investigations

- Headquartered in Ingelheim, Germany, Boehringer Ingelheim operates globally with 142 affiliates in 50 countries. Its four principal Research and Development centres are located in Austria, Canada, Germany and USA and are supported by sites in Japan, Italy and Argentin.

BOEHRINGER INGELHEIM
Michael G. Cordingley, Ph D.
Senior Vice-President, Research

BIOGRAPHY

Training and academic background

1999	BA Genetics, Cambridge University, England, UK
1983	Ph.D, MRC Institute of Virology, Glasgow University, Scotland, UK
1983-1986	Visiting Fellow, Laboratory of Tumor Virus Genetics and Hormone Action and Oncogenesis, National Cancer Institute, NIH, Bethesda, Maryland, USA
1983-1988	Visiting Associate, Hormone Action and Oncogenesis Section, National Cancer Institute, NIH, Bethesda, Maryland, USA

Industry Background

1988-1991	Virus & Cell Biology Merck Sharp & Dohme Research Laboratories. Merck & Co., Inc., West Point, PA, USA
1991-1993	Department of Virology, Bristol-Myers Squibb Pharmaceutical Res. Institute, Princeton, New Jersey, USA
1993- present	Research and Development, Boehringer Ingelheim (Canada) Ltd., 2100 rue Cunard, Laval Québec, Canada H7S 2G5

Areas of research interest

- Infectious diseases
- Antiviral and antibacterial discovery
- Drug discovery technologies

CONTACTS

Tél. : +1(450)682 - 4641 - x4202
Email : michael.cordingley@boehringer-ingelheim.com

BOEHRINGER INGELHEIM
Patrick Allen Robinson, M.D.
Deputy, International Therapeutic Area Head, Virology

BIOGRAPHY

Training and academic background

1969-1973 Medical Degree, Wayne State University, Detroit, MI
1973-1974 Internship, Montefiore Hosp, University of Pittsburgh, PA, Internal Medicine
1974-1976 Residency, University of Oklahoma, Oklahoma City, OK, Internal Medicine – Board Certified (1976) 's year
1976-1978 Fellowship, University of Oklahoma, Oklahoma City, OK, Infectious Disease
1978-1980 PHS Medical Officer: Epidemic Intelligence Service, Centers for Disease Control, Atlanta, GA, Viral Disease Division
1979-1980 Head, Respiratory Activities, Centers for Disease Control, Atlanta, GA
1980-1987 Director, Infectious Disease Division; Assistant Professor; Associate Professor of Medicine (tenured), Internal Medicine Department, West Virginia University, Charleston, WV
1980-1987 Director, Infectious Disease Research Laboratory, West Virginia University – Charleston Division
1980-1987 Clinical Assistant Professor, Department of Pathology; Attending Physician, Internal Medicine and Infectious Disease, Charleston Area Medical Center, Charleston, WV
1989-1992 Clinical Instructor, Yale University School of Medicine, Infectious Disease Department

Industry Background

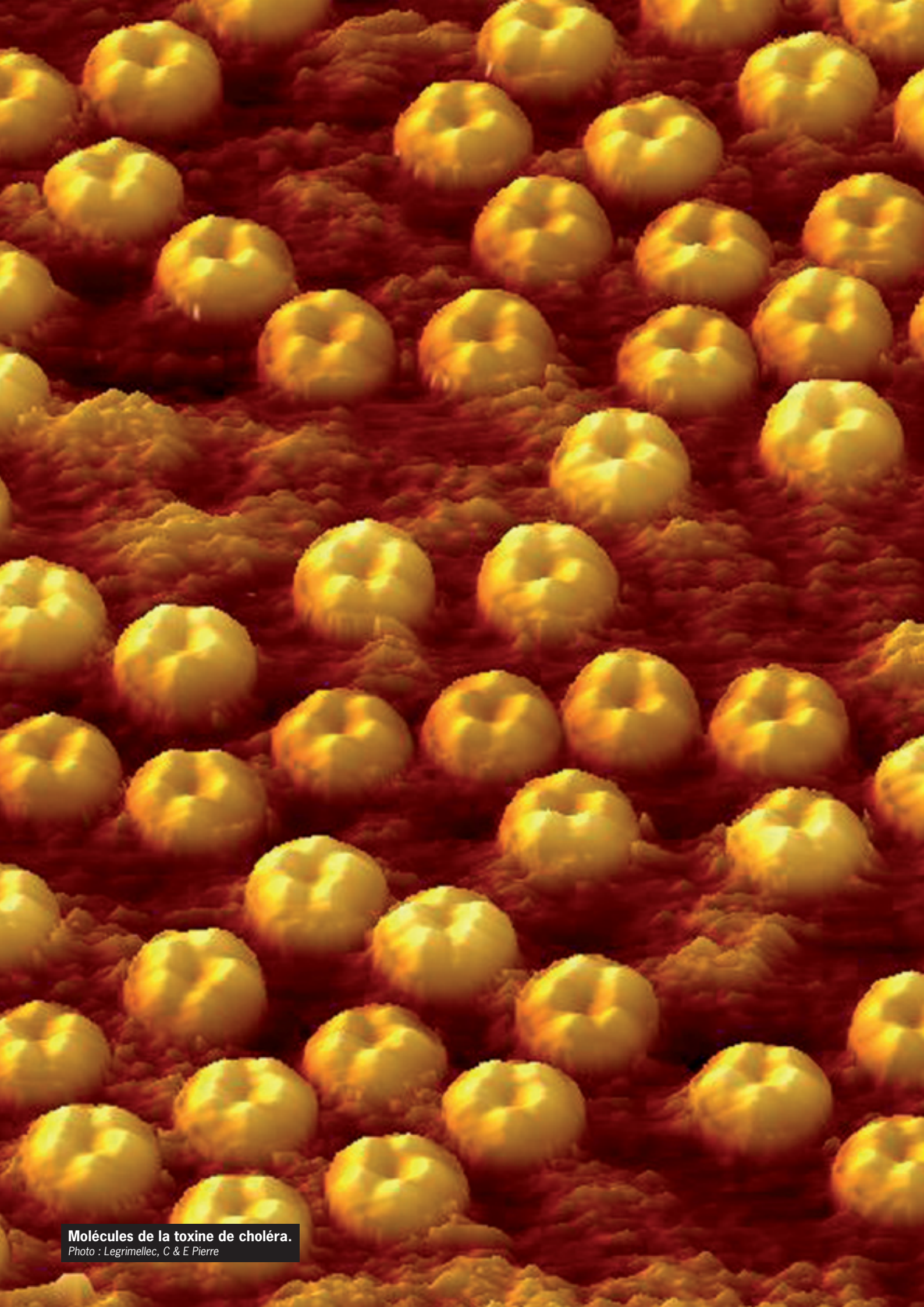
1987-1994 Associate Director; Senior Associate Director, Pfizer Research and Development, Groton, CT, Infectious Disease Department
1994-2007 Senior Associate Director; Clinical Program Director, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT, Clinical Virology Department
2007-current Deputy, International Therapeutic Area, Virology, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT

Areas of research interest

- Infectious Diseases, Virology, HIV
- Clinical drug development

CONTACTS

Tél. : +1-203-798-5033
Email : patrick.robinson@boehringer-ingelheim.com



Molécules de la toxine de choléra.
Photo : Legrimellec, C & E Pierre

BRISTOL-MYERS SQUIBB

Company Size : 27,000 employees worldwide
R&D Staff : 6820 employees in R&D. **Annual R&D spending :** $3.6B
Annual sales 2010 : Worldwide 19.5bn$ (20% Virology) Europe 3.5bn$ (France 1.1bn$)

History of Commitment in the field of INFECTIOLOGY

BMS was one of the first Laboratory involved in antibiotherapy in 1940's with the discovery and the development of the first class of penicillin, followed by ampicillin (Totapen ®)in 1960's, Amoxicillin in 1970's and in 1976 amikacin (Amiklin ®)and 1st generation cephalosporin – cefadroxyl (Oracefal ®) in 1977. The last antibiotic developed by BMS was the 3rd generation cephalosporin – cefepim (Axepim ®), launched in 1993. In field of Infectiology, BMS developed also antifungal in 1956 with Mycostatin ® and in 1967, the amphotericin B (Fungizon ®).
Involvement in Virology began on 1991 with the launch of one of the first Nucleoside Reverse Transcriptase Inhibitors, didanosine-ddI (Videx ®) for the HIV treatment and this area is currently one of the most important BMS franchise.

Product Portfolio in the Area

• Videx (didanosine-ddI)	HIV Nucleoside Reverse Transcriptase Inhibitors (NRTI)
• Zerit (stavudine-d4T)	HIV Nucleoside Reverse Transcriptase Inhibitors (NRTI)
• Reyataz (atazanavir)	HIV protease inhibitor
• Sustiva ; Atripla (efavirenz)	HIV Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI)
• Baraclude (entecavir)	Nucleoside anti-viral for hepatitis

R&D Focus Portfolio and Prospective in this Area

• BMS-936558 (MDX-1106)	Anti-PD-1 for cancer and hepatitis C (HCV)
• BMS-790052/824393	NS5A inhibitor for hepatitis C
• BMS-650032	NS3 protease inhibitor for hepatitis C
• BMS-914143 (PEG-rIL-29)	Pegylated interferon lambda
• BMS-791325	NS5B polymerase inhibitor for hepatitis C
• BMS-663068	HIV attachment inhibitor
• festinavir	NRTI for HIV

Places of Worldwide Investigations

• 68 molecules in development worldwide of which 6 in advanced phase,
including significant French participation in clinical studies

BRISTOL-MYERS SQUIBB
Mark I. Cockett, Ph.D.
Vice President Discovery Infectious Diseases & Applied Genomics

BIOGRAPHY

Training and academic background

1987 - 1993 PhD "The role of matrix metalloproteinases in tumour cell invasion."
Celltech Ltd. and The Strangeways Research Laboratory, Cambridge, UK

1984 – 1987 Institute of Biology, London, UK
B.Sc. (1st Class Hons) Biochemistry

Industry Background

• Responsible for Discovery Infectious Diseases and Applied Genomics across 3 sites (140 staff)
Discovery Infectious Diseases consists of research biologists discovering therapies for HIV, HBV & HCV.
Applied Genomics is a technology team that supports all therapeutic areas at BMS with state-of-the-art genomic and bioinformatic technologies that contribute to every target in our pipeline.

Member of Disease Sciences & Biologics leadership team; Chair of the Virology Target Science Team (TST); Member of Target Portfolio Committee (TPC); Member of Virology Disease Strategy team (DST) and Early Asset Strategy Team (EAST).

2008-Current Vice President Discovery Infectious Diseases & Applied Genomics, BMS, USA
2003-2008 Vice President Applied Genomics, BMS, USA
2000-2003 Executive Director, Functional Genomics, BMS, USA
1993-2000 Director, Molecular & Cell Biology, Neuroscience, WYETH, USA
1984-1993 Research Scientist, CELLTECH PLC, UK

Areas of research interest

• Genomic technologies and approaches
• Infectious Diseases, in particular HIV, HBV, HCV and HPV

CONTACTS

Mark I. Cockett, Ph.D.
Vice President
Discovery Infectious Diseases & Applied Genomics
Bristol Myers Squibb Company, Research & Development
5 Research Parkway
Wallingford, CT 06492

Tél. : 203) 677-6637
Mob. : (203) 435-2016

BRISTOL-MYERS SQUIBB
Donnie McGrath
Strategic Transactions Group

BIOGRAPHY

Training and academic background

1984	B.Soc.Sc University College Dublin, Ireland (1st Class)
1990	MB ChB Royal College of Surgeons in Ireland
1990 - 1991	Intern in Medicine and Surgery, Beaumont Hospital, Dublin, Ireland
1991 - 1994	Medical Resident, St. Elizabeth's Medical Center, Boston, MA
1995 - 1998	Infectious Disease Fellowship, Tufts-New England Medical Center, Boston, MA
1998 - 2005	Assistant Professor of Medicine, Tufts-New England Medical Center (Infectious Disease)
2002	MPH, Harvard University School of Public Health

Industry Background

2009 - present	Executive Director, Strategic Transactions Group, responsible for virology searchand evaluation on a global basis
2007 - 2009	Atazanavir Development Lead, Group Director, Virology Global Clinical Research, BMS
2006 - 2007	Atazanavir Medical Lead, Director, Virology Global Clinical Research, BMS
2005 - 2006	Associate Director, Virology Global Clinical Research, BMS

Areas of research interest

- Virology

CONTACTS

Donnie McGrath
Executive Director
Strategic Transactions Group
Bristol Myers Squibb Company
5 Research Parkway
Wallingford, CT 06492

Tél. : (203) 6777346
Mob. : (413) 2071674

CEVA SANTE ANIMALE

Company Size: 2600 people
R&D Staff: 220 people
Annual sales 2010: € 468 M

In the swine specie as example, in the History of the Ceva group, you can find laboratories like Cogla, Phylaxia VetBio and scientists that impacted the veterinary history like Aladar Aujesky or Adorjan Bartha who worked at Phylaxia VetBio (now Ceva Phylaxia).
This scientific excellence allows the group today to propose innovative solutions to diseases like Classical Swine Fever, respiratory diseases (Actinobaccillus pleuropneymoniae) and Aujesky disease.

Product Portfolio in the Area

• **Poultry:** World leader in Immune Complex and Vector vaccine technology (examples below)
CEVAC® **TRANSMUNE IBD :** Immune complex technology against Infectious Bursal Disease
Vectormune ® FP poultry vaccines using the fowl poxvirus as a vector, and
Vectormune ® HVT which uses the turkey herpes virus as the vector.

• **Swine:** Vaccines for prevention of devastating diseases like Hog cholera, Aujeszky disease or porcine pleuropneumonia. Means to control swine dysentery, streptococcus and pasteurella infections by antibiotics.

• **Ruminants: Vaccines:**
COGLAVAX® (clostridiosis);
CEVAC **CHLAMYDOPHILA®** (chlamydiosis);
COXEVAC®(coxiellosis or Q fever)
COGLAREV® (brucellosis – REV 1 vaccine)

Anti-infectives: All key molecules available in the CEVA range.

R&D Focus Portfolio and Prospective in this Area

• Trypanosomiasis vaccine programme development (Alliance with Galvmed, University Bordeaux and Ceva).
• Antibiotic Resistance Monitoring Programmes
• Since 2007, public-priv ate partnership with Edinburgh and Kampala Universities to conduct a field experiment (by the name of “S.O.S” for “Stamp Out Sleeping sickness”)
• Innovative approaches to parasiticides management.

Places of Worldwide Investigations

• Pharmaceutical R&D centres in Libourne (France), Kansas City (USA), Paulínia (Brazil) and Cavriago (Italy).
• Biological R&D centres in Kansas City (USA), Cuernavaca (Mexico), Campinas (Brazil),
Budapest (Hungary) and Tokyo (Japan).

CEVA SANTE ANIMALE
Marc Prikazsky
Chief Executive Officer

BIOGRAPHY

Training and academic background

1983	PhD Veterinary – Ecole Maisons Alfort
1983-1984	National Service – Coopération with Sénégal/Africa

Industry Background

1985-1991	Canine private practice
1986	UPJOHN Laboratories – Sales manager/France Supervision of the French veterinary division of the American Pharmaceutical Group
1995	SANOFI SANTE NUTRITION ANIMALE (Libourne – 33) Sales manager France
1998	Sales Manager Europe
2004	CEVA SANTE ANIMALE (Libourne – 33) Director Operations of CEVA Group
2006	Deputy General Manager
2009	Chief Executive Officer

CONTACTS

Tél. : +33 /0/5 57 55 41 26
Email : marc.prikazsky@ceva.com

CEVA SANTE ANIMALE
Pascal Raoul, DR.
Director Pharmaceutical Operations

BIOGRAPHY

Training and academic background

1984 Doctor in Veterinary Medicine
Thesis: Dinophysis sea food contaminations
1986 Master in Business Administration (HEC-IESE)
2006 BlackBelt, Lean 6 Sigma

Industry Background

1988-2007 Eli Lilly and Co, Elanco Animal Health
2001-2004 Director Innovation Strategy, Elanco Animal Health
2004-2007 Director EU R&D and Regulatory Affairs
2007-2010 Lallemand Inc, General Manager Animal Nutrition and Health Division
2010- present Director Pharmaceutical Operations, Ceva Animal Health

Areas of research interest

- Antibioresistance in livestock and particularly impact of therapeutic behaviour on antibioresistance spread
- Development of diagnostic tools for infectious diseases: Salmonellosis, Clostridial diseases…
- Formulation development for increase drug availability and reduced antibiotic needs
- Trypanosomiasis treatment in Africa

CONTACTS

Tél.: +33 6 82 56 81 88
Email: pascal.raoul@ceva.com

CEVA SANTE ANIMALE
Christophe Manteca
Technical Manager

BIOGRAPHY

Training and academic background

1991	Doctor in Veterinary Medicine
1995	Master in Experimental Medical Sciences
2001	PhD in Veterinary Sciences
1992 - 1994	Junior Lecturer at University of Liège (Dept. of Parasitic and Infectious diseases)
2002 - 2009	Asst. Professor (Infectious diseases) at the University of Brussels (ULB)

Industry Background

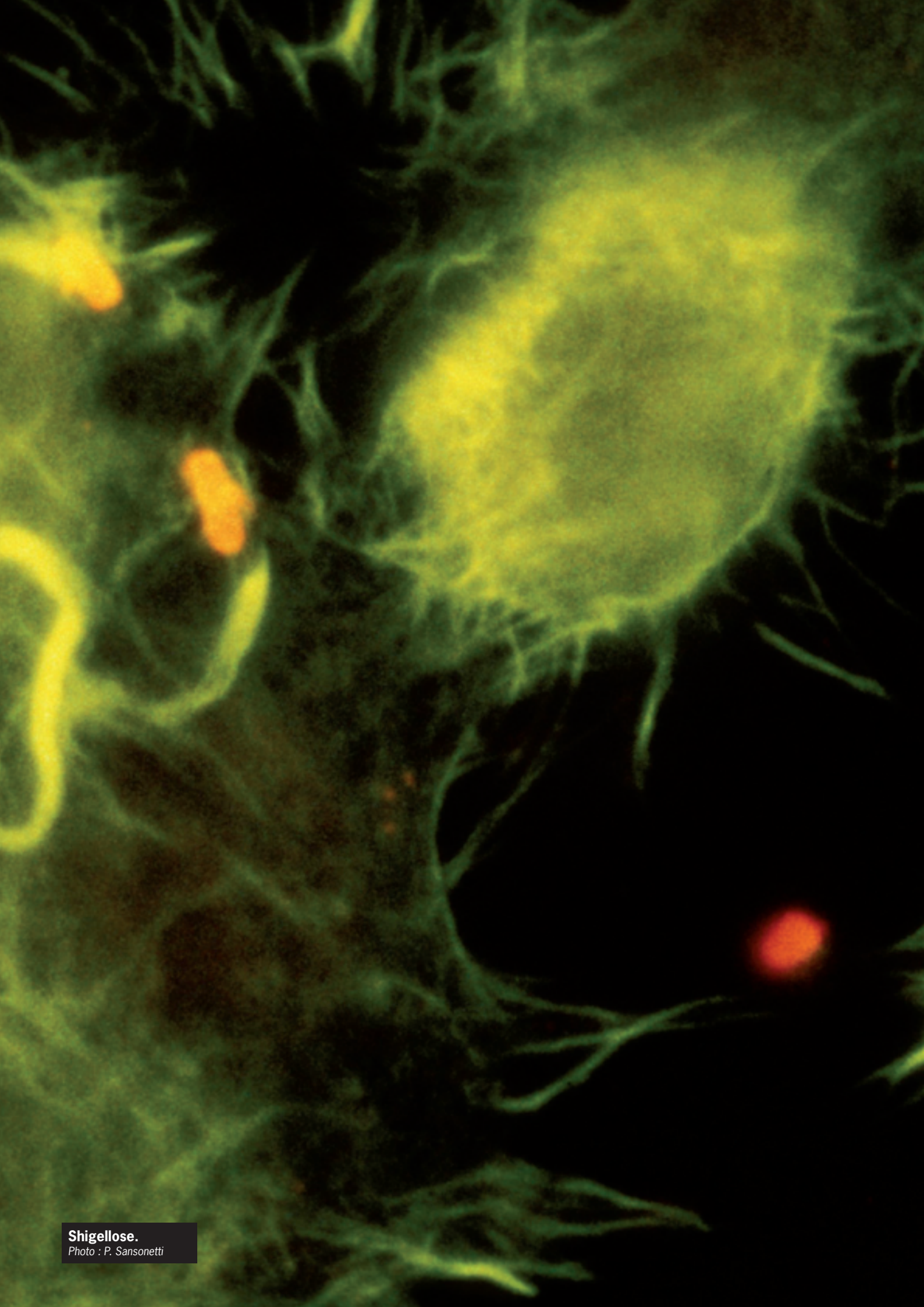
2001 - Corporate	Technical Manager- Livestock Infectious diseases

Areas of research interest

- Epidemiology of phenotypic antibioresistance in livestock and particularly impact of therapeutic behaviour on antibioresistance spread.
- Development of diagnostic tools for infectious diseases: Salmonellosis, Clostridial diseases…
- Pathogenesis and Immunology: Clostridial diseases, Q fever and particularly identification of toxins and of antigens of interest for the vaccines development.
- Development of therapeutic strategy against Apicomplexa

CONTACTS

Tél. : +32475454726
Email : christophe.manteca@ceva.com



Shigellose.
Photo : P. Sansonetti

GLAXOSMITHKLINE

Company Size : 96 500 employees in 100 countries
R&D Staff : 14000 people
Annual sales 2010 : € 32.93 billion turnover

Long term commitment of GSK's drug discovery effort against Infectious Diseases (HIV/AIDS, viral hepatitis, bacterial infections, malaria, TB and vaccines)
Virtualisation of drug discovery through strategic alliances with a number of external biotech companies including Anacor, Galapagos, Isis, Regulus, Santaris and Mpex.
GSK acquired Genelabs Technologies, Inc., a California-based biotech firm with an extensive Hepatitis C Virus portfolio.
License agreement granting GSK exclusive worldwide rights to a Phase II compound from Idenix Pharmaceuticals for the treatment of HIV/AIDS.

Product Portfolio in the Area

• Vaccines : Boostrixtetra®, Cervarix®, Engerix B®, Fluarix®, Havrix®, InfanrixHexa®, InfanrixQuinta®, InfanrixTetra®, Priorix®, Rotarix®, Twinrix®, Typherix®, Varilrix®
• Influenza Pandemic Vaccine – European License in may 2008 – Pandemrix/Prepandrix
• Varicella Zoster Vaccine for the elderly – phase III ongoing
• Virology : Relenza®(zanamivir), Zelitrex®(valaciclovir), Zovirax® (aciclovir)

Antibacterials :
• Augmentin® (amoxicilline, acide clavulanique)
• Bactroban® (mupirocine)
• Clamoxyl® (amoxicilline)
• Claventin® (ticarcilline, acide clavulanique)
• Fortum® (ceftazidime)
• Ticarpen® (ticarcilline)
• Zinnat® (céfuroxime)

Parasitology
• Halfan® (halofantrine)
• Malarone® (atovaquone, chlorhydrate de proguanil)
• Wellvone® (atovaquone)

R&D Focus Portfolio and Prospective in this Area

• Hepatitis C
• Antibiotics (new mecanism of action)
• CMV, antiStaph aureus vaccines
R&D activities have been focused on the use of novel adjuvant technology. When combined with antigen (active principle of a vaccine), adjuvant allows the development of vaccines with increased performance, restored efficacy in individuals with weakened immunity, or exhibiting unique efficacy properties. The adjuvant technology might allow developing vaccines against disease requiring specific type of immunity that cannot be induced with classical technologies such as tuberculosis.

Places of Worldwide Investigations

• R&D teams in the US, UK, and Belgium
World wide discovery unit, based at Tres Cantos for research in neglected diseases.
With a focus on the development of new prophylactic vaccines, both R&D as well as Clinical development activities are being conducted on a global basis addressing the specific medical need of different region in the world.

GLAXOSMITHKLINE
Zhi Hong, Ph.D.
Senior Vice-President of the Infectious Diseases Centre of Excellence for Drug Discovery

BIOGRAPHY

Training and academic background

1992	Ph.D. in Biochemistry. State University of New York at Buffalo.
1985	B.S. in Biochemistry. Fudan University at Shanghai, P. R. China
1987-1992	Completed research effort in molecular parasitology as part of my Ph.D. thesis Research Mentor: Professor David M. Rekosh

Industry Background

04/2007 - present	Senior VP ID CEDD, GlaxoSmithKline
12/2006 - 04/2007	Executive VP & CSO Ardea Biosciences, Inc.
01/2002 - 12/2006	Vice President Valeant/Ribapharm/ICN Pharmaceuticals
06/2000 - 01/2002	Director ICN Pharmaceuticals
01/2000 - 06/2000	Section Leader Schering-Plough Research Institute
01/1998 - 01/2000	Principal Scientist Schering-Plough Research Institute
01/1996 - 01/1998	Associate Principal Scientist Schering-Plough Research Institute
04/1994 - 01/1996	Senior Scientist Schering-Plough Research Institute
04/1992 - 04/1994	Postdoctoral Fellow Schering-Plough Research Institute
08/1987 - 04/1992	Teaching/Research Assistant State University of New York at Buffaloi

Areas of research interest

- HCV, HIV, bacterial infection

CONTACTS

Tél. : 001-919-483-6256
Email : Zhi.3.hong@gsk.com

GLAXOSMITHKLINE
Nick Cammack, DR.
SVP and Head, Medicines Development Campus

BIOGRAPHY

Training and academic background

1986-1989 National Institute for Biological Standards & Control, London MRC PostDoctoral Fellowship
1983-1986 University of London. MRC PhD Fellowship at the London School of Hygiene & Tropical Medicine
1982-1983 University of Reading, UK. MSc in Virology
1979-1982 University of Leeds, UK. BsC(Hons) in Microbiology

Industry Background

2009 to date GSK SL, Tres Cantos, Spain. Senior Vice-President & Head, Medicines Development Campus for Diseases of the Developing World

2007-2009 Roche, Palo Alto, CA, USA. Global Head of Virology Disease Biology Area (Discovery, Clinical, Marketing)

2001-2007 Roche, Palo Alto, CA, USA. Vice-President, Head of Discovery & Global Virology Therapeutic Area Head

1997-2001 Roche Products Ltd, Welwyn, UK. Virology Department
Head of Department (1997)
HIV Disease Area Head (1999)

1995-1997 GlaxoWellcome plc, Stevenage, UK. Immunopathology Unit
Viral Immunopathology Group Leader (1995)

1989-1995 Glaxo Group Research Ltd, Greenford, UK. Virology Department
Senior Research Scientist (1989); Principal Research Scientist (1992)
Research Leader (1994)

Areas of research interest

- Malaria
- Mycobacterium tuberculosis
- Visceral leishmaniasis
- Trypanosomal infections

CONTACTS

Dr. Nick Cammack
SVP and Head, Medicines Development Campus
GlaxoSmithKline
Parque Tecnologico de Madrid
Severo Ochoa 2
28760 TRES CANTOS
Madrid
Spain

Tél. : + 34 91 807 0515
Email : Nicholas.c.cammack@gsk.com

GLAXOSMITHKLINE
Emmanuel Hanon
Vice President, Early Prophylactic Vaccines, Research & Development

BIOGRAPHY

Training and academic background

1993 Doctor in Veterinary Medicine, University of Liège (ULg), "Grande distinction" (16/20)
1997 PhD in Veterinary Medicine, Thesis title "Apoptosis induced by Bovine herpesvirus 1" supervised by Prof. P.-P. Pastoret, University of Liège (ULg), "La plus grand distinction et les félicitations du jury" (18/20)
2001 Certified for Human Electrocardiogram Interpretation, Free university of Brussels (ULB), (18/20)

Professional experience

- Assistant, ULg 1993, Immunology/Vaccinology, Professor P.-P. Pastoret, ULg
- Aspirant, Fonds National de la recherche scientifique belge (FNRS) 1993-1995, Immunology/Vaccinology, Professor P.-P. Pastoret, ULg
- Aspirant, FNRS 1995-1997, Immunology/Vaccinology, Professor P.-P. Pastoret, ULg
- Chargé de recherches, FNRS 1997-2000, Immunology, Professor C. Bangham, Imperial College, St Mary's, London
- Chargé de cours, UCL (2000-2005), Immunologie générale (BIOL2161)

Industry Background

2000-2001 Associate scientist, Toxicology department, Lilly Development Center, Belgium
2001-2002 Scientist, Basic Immune mechanism group, Research and Development, GlaxoSmithKline Biologicals S.A., Belgium
2002-2004 Scientist, Human Cellular Immunology Group Leader, Research & Development, GlaxoSmithKline Biologicals S.A., Belgium
2005-2006 Director, Viral Diseases Program, Research and Development, GlaxoSmithKline Biologicals S.A., Belgium
2006-2007 Director, Influenza Franchise Head, Global Vaccine Development, GlaxoSmithKline Biologicals S.A., Belgium
2007-2008 Vice President, Influenza Franchise Head, Global Vaccine Development, GlaxoSmithKline Biologicals S.A., Belgium
2008-2010 Vice President, Elderly Franchise Head, Global Vaccine Development, GlaxoSmithKline Biologicals S.A., Belgium
2010 Vice President, Early Prophylactic Vaccines Head, Research & Development, GlaxoSmithKline Biologicals S.A., Belgium

Areas of research interest

- Immunology
- Vaccinology
- Virology

CONTACTS

Tél.: + 32 2 656 33 19
Mob.: + 32 473 64 51 65
Email: emmanuel.hanon@gskbio.com

JANSSEN

Company Size : around 114,000 employees
Corporation : Johnson and Johnson
R&D Staff : around 400 (infectious diseases only)
Annual sales 2010 : $ 61.6 billion ($ 22.4 billion pharma only)

Tibotec was founded in 1994, with the goal of finding new treatments for HIV-1 infection in patients with multi-drug resistance. The company was acquired by Johnson and Johnson in 2002. The company discovered, and successfully developed PREZISTA and INTELENCE, studying both molecules in highly treatment experienced patients. PREZISTA was approved on the basis of Phase IIb clinical trials results. Its indication has now been extended to all HIV-1 infected adults. The approval of those two drugs was instrumental in a treatment paradigm shift, i.e. all treated patients should show an undetectable plasma viral load, regardless of their prior treatment experience level. Ripivirine is being developed for treatment-naïve patients, with the aim of providing those with a convenient "one pill once a day" regimen (in collaboration with Gilead Sciences for a fixed dose combination of rilpivirine with tenofovir and emticitabine). Tibotec has entered several agreements with generic manufacturers to ensure adequate distribution of its HIV drugs in least developed countries. Next to HIV, the company R&D is developing two protease inhibitors for the treatment of HCV infection: telaprevir (in collaboration with Vertex Therapeutics), and TM435 (in collaboration with Medivir). The company also has an active research program on inhibitors of HCV with different mechanisms of action. Other research programs address the following pathogens: RSV, Influenza, Dengue, HBV, and others. Last but not least, our research identified TMC207, a TB drug with a new mechanism of action, active against multi-drug resistant Mycobacterium tuberculosis. Tibotec is developing this drug for MDR TB, and has entered an agreement with the TB Global Alliance for the development of TMC207 for drug-susceptible TB. Recently Johnson and Johnson acquired the vaccine company Crucell, which focuses on prevention of infectious diseases.

Product Portfolio in the Area

- PREZISTA (darunavir, TMC114), a protease inhibitor for the treatment of HIV-1 infection
- INTELENCE (etravirine, TMC125), a non-nucleoside reverse transcriptase inhibitor for the treatment of HIV-1 infection
- DORIBAX (doripenem), a cell-wall synthesis inhibitor for the treatment of nosocomial pneumonia, complicated intra-abdominal infections, and complicated urinary tract infections
- Rilpivirine (TMC278), a non-nucleoside reverse transcriptase inhibitor for the treatment of HIV-1 infection, marketing authorization file submitted
- INCIVO (telaprevir, VX-950), a protease inhibitor for the treatment of HCV infection, marketing authorization file submitted

R&D Focus Portfolio and Prospective in this Area

- TMC435, a protease inhibitor for the treatment of HCV infection, currently in Phase III clinical development
- TMC207, an ATP synthase inhibitor for the treatment of MDR TB, currently in Phase IIb clinical development
- FluMab (CR6261), a monoclonal recognizing a conserved epitope of Influenza A viruses, for the treatment and prevention of Influenza A infection, currently in Phase I clinical development
- Research ongoing in the following areas:
  - HIV: long acting formulations of antiretroviral drugs (e.g. rilpivirine), purging HIV reservoirs
  - HCV: direct antivirals with other mechanisms of action for the treatment of HCV infection
  - RSV: fusion inhibitors, vaccine (in collaboration with Crucell)
  - Flu: universal vaccine (in collaboration with Crucell)
  - HPV: therapeutic vaccine (in collaboration with Crucell)
  - TB: back-up compounds for TMC207 (in collaboration with the TB Global Alliance)
  - Infections of the emerging economies (Dengue, HBV, etc.)

Places of Worldwide Investigations

- Clinical trials conducted worldwide (Europe, Africa, Asia, Australia, North and South America)
- Research collaborations in USA, Canada, France, UK, Germany, Switzerland, China (PRC), etc.

JANSSEN
Marie-Pierre de Béthune
VP External Innovation ID&V

BIOGRAPHY

Training and academic background

1984 PhD on thesis (Siences Biology), cum maxima laude
Université Catholique de Louvain, Belgium.

1973 Bachelor degree in Sciences (Biology) , cum magna laude
Université Catholique de Louvain, Belgium

Industry Background

2010-present Vice-President External Innovation, Infectious Diseases and Vaccines
2008-2010 Vice-President Scientific Affairs and Strategic Development, Tibotec, Mechelen, Belgium
2002-2008 Vice-President Global Clinical Virology, Tibotec, Mechelen, Belgium
1998-2001 Research Director Virology, Tibotec, Mechelen, Belgium
1994-1998 Project Leader Virology, Tibotec, Edegem and Mechelen, Belgium
1990-1994 Sr. Assistant, Department of Microbiology, Rega Institute for Medical Research, Katholieke Universiteit Leuven, Belgium
1987-1990 Project Leader Virology, Celltarg/Medgenix Group SA, Fleurus, Belgium
1984 - 1986 Scientific staff member (PREST contract), Laboratoire de Biochimie Médicale, ICP, Université Catholique de Louvain, Belgium
1981 - 1984 Post-doc, Laboratoire de Biologie Moléculaire, ICP, Université Catholique de Louvain, Belgium
1979 - 1981 Free Assistant, Laboratoire de Génétique Moléculaire, Université Catholique de Louvain, Belgium
1978 - 1979 Associated Assistant, Département de Biochimie, Université Claude Bernard, Villeurbanne (Lyon), France
1973 - 1978 PhD, Laboratoire de Génétique Moléculaire, Université Catholique de Louvain, Belgium

Areas of research interest

Infectious diseases and vaccines

- Discovery and development of TMC125 (etravirine, INTELENCE)
- for the treatment of HIV-1 infection
- Discovery and development of TMC114 (darunavir, PREZISTA) for the treatment of HIV-1 infection..
- Discovery and development of TMC278 (rilpivirine), submitted for market authorization with FDA, EMA and other regulatory authorities, for the treatment of HIV-1 infection.
- Other viruses: Dengue, RSV, Hepatitis B, Hepatitis C, CMV, etc…
- Bacteria: TB, MDR Gram negative
- Vaccines for infectious diseases

CONTACTS

Tél. : +32(0)47927307
Email : mdbethun@its.jnj.com

JANSSEN
Jérôme Guillemont
Research Fellow

BIOGRAPHY

Training and academic background

1989 I gained my Ph.D degree in organic chemistry from the University of Rouen (France) under the supervision of Prof. P.Duhamel, working on terpene synthesis by anionic and cationic reactions

1985 DEA Organic Chemistry (Rouen University, France)

Industry Background

2009-present Research Fellow at Tibotec for Janssen-Cilag (Val de Reuil) France
Infectious disease area team leader

2000-2009 Principal scientist at Tibotec, a division of Johnson & Johnson, (Val de Reuil) France
Project team leader in HIV, TB, antibacterials

1991-2000 Senior scientist at Janssen-Cilag (Val de Reuil) France
Chemistry team leader in HIV, GI and Infectious diseases projects.

1989-1991 Scientist at Janssen France (Paris)
Co-team leader in a wide variety of research programs mainly within Inflammation, Infectious Diseases and Neuroscience therapeutic franchises.

Areas of research interest

- HIV, TB and antibacterial fields

  Discovery of TMC278 as next generation of Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTI), currently in phase III clinical trials.
  Discovery of TMC207, a drug candidate in phase IIb clinical development for MDR-TB, acting through a novel mechanism of action, ATP synthase inhibition, to treat microbial infections.
  Discovery of two new antibiotic classes currently in preclinical phase against MRSA and Clostridium infections

CONTACTS

Tél. : +33(0)232617458
Email : jguillem@its.jnj.com

LFB

Company Size : 1900 people
R&D Staff : 300 people
Abbott annual sales 2010 : € 411 M

LFB is a French state owned company created in 1993 with a public health mission to develop, manufacture and provide hospitals with pharmaceutical products for the treatment of severe diseases, those products being therapeutic proteins obtained from human plasma fractionation or recombinant technologies.

The historical commitment of LFB in infectiology is very specific as it comes naturally from the development, production and supplying of polyvalent immunoglobulins (IVIg) extracted from human plasma, and mainly used in the prevention of infectious episodes in Inherited Immune Deficiencies. In this indication which affects more than 5000 patients in France, IVIg are considered as essential therapies by the WHO.

Indeed, when administered on a regular monthly basis, IVIg are able to guarantee a quasi normal way of life to those severe patients otherwise exposed to a lethal prognosis in the short term.

IVIg are equally validated in acquired immuno deficiencies like that encountered in HIV infection or leukemias.

Along side polyvalent IVIg, LFB is also engaged in several hyper immune IVIg which, being obtained from immunised patients, are able to treat or prevent tetanic endotoxinic shock, viral hepatitis and chikungunya infection as well.

More recently LFB has developed a full line of research in monoclonal antibodies, one of them being developed in the shigatoxin induced shock (STEC syndrome) which affects young patients following eating of contaminated meal.

Life-threatening infectious diseases in hospitalized patients (sepsis) are also an active area of research for LFB. The strategy is not only to fight against pathogens but more importantly to help the host by ameliorating their immunological and coagulation status and preserving vital functions.

Finally, as being the national producer of plasma derived proteins, LFB remains deeply involved in the infectious safety of biological products by developing new elimination processes and supporting translational research via the Alliance BioSecure Foundation recognized of public utility in France, and of which LFB ensures the presidency.

Product Portfolio in the Area

Infectious diseases :
- CLAIRYG® and TEGELINE® (polyvalent IVIg)
- GAMMATETANOS® (IVIg antitetanos)
- IVHEBEX® (IVIg antihepatitis B)

Sepsis and intensive care :
- VIALEBEX® (Albumine)
- PROTEXEL® (non-actived C protein)
- ACLOTINE® (Antithrombin)

R&D Focus Portfolio and Prospective in this Area

- Monoclonal antibodies directed against infectious toxins
- Products directed against the consequences of septic shock

LFB
Jean-François Prost
Head of Scientific and Medical Operations

BIOGRAPHY

Training and academic background

1981 M.D. Ancien Chef de clinique Assistant des Hôpitaux de Paris
Specialist in Internal Medecine
Complementary certificates in Pharmacology and Statistics

1975-1980 « Interne » AP-HP Paris

1980-1983 « Chef de Clinique – Assistant » AP-HP Paris

Industry Background

• SERVIER (Paris) : Director of the Cardiovascular Division (25 people)
General Manager of Discovery Centers (450 people)

• Pierre FABRE Medicament (Paris) : Development Director (350 people)
Research & Development Director (600 people)
IRPF (Institut de Recherche Pierre FABRE) President

• UCB (Brussels) : Research & Development Director (600 people)
Member of the Executive Committee

2006 to day LFB SA (Paris)
Senior Vice President Medical and Scientific Affairs
Member of the Executive Committee
LFB Biotechnologie (Paris)

Areas of research interest

• Monoclonal antibodies in infectious diseases, anti immune diseases and cancers
• Prions

CONTACTS

Tél. : +33 1 69 82 73 54
Email : prost@lfb.fr

LFB
Rémy Urbain
Scientific Partnerships, Director

BIOGRAPHY

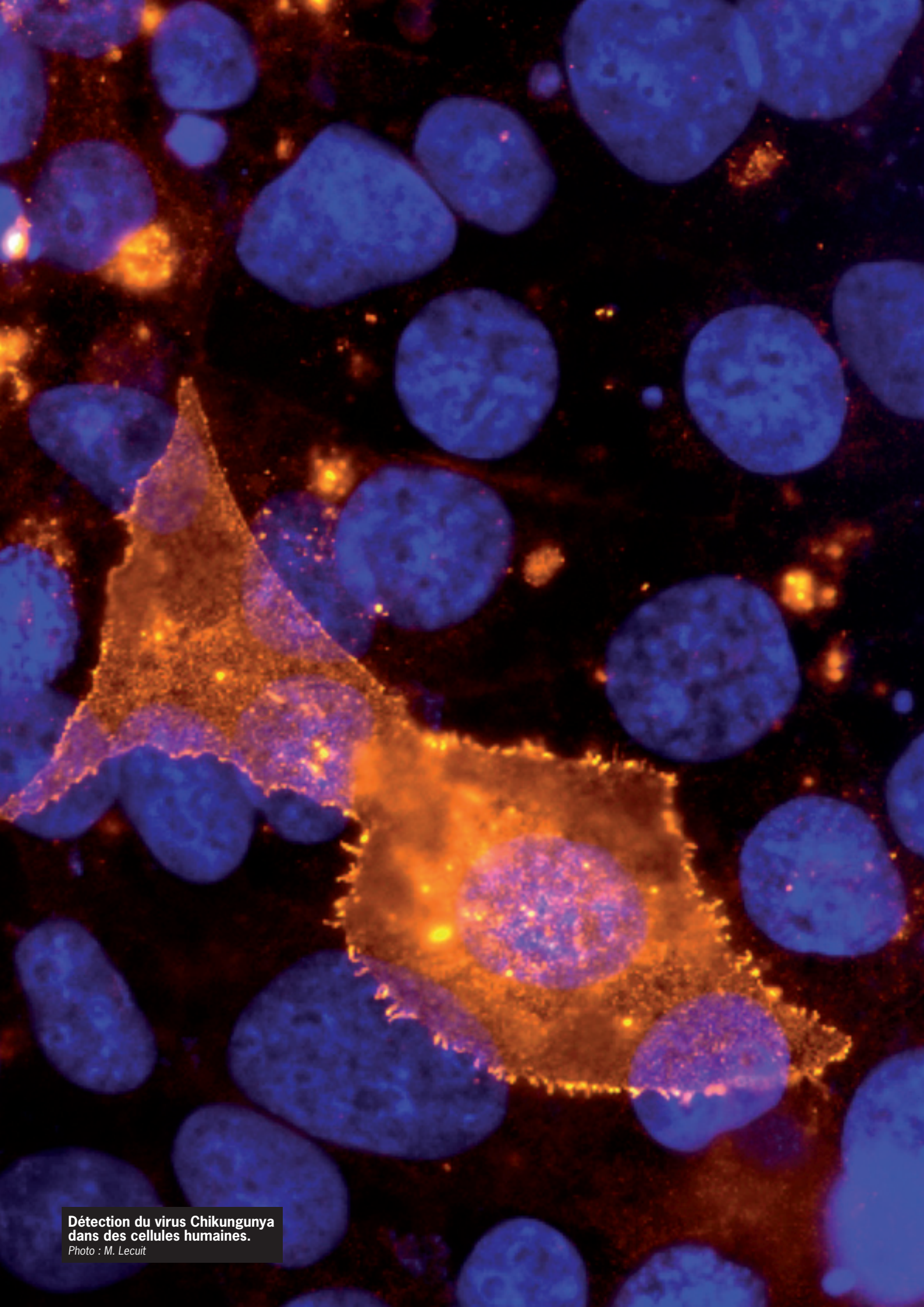
Rémi URBAIN, 46 (dob17/05/1965), is graduate from the Ecole Supérieur de Cachan (France) and MS in Biochimistry (Paris VII) and in Cardiovascular Pharmacology (Lyon I).
He entered pharmaceutical industry in 1991, and has hold since then various positions in Rhône-Poulenc Rorer Central research and then Pierre Fabre Research Institute, in clinical research, project management, external research and R&D management.

Since August 2005, he has been appointed Scientific Partnerships, Director of LFB, namely in change of private/ public research projects management. He is in particular the coordinator of “poles de compétitivités” and ANR projects led by LFB, in particular on monoclonal antibodies.
He represents LFB at French National Syndicate for Pharmaceutical Industry (Biotechnology commission).

CONTACTS

Rémi Urbain, Directeur
des Partenariats Scientifiques
LFB BIOTECHNOLOGIES
3 avenue des tropiques
91958 LES ULIS cedex

Tél. : +33 (0) 1 69 82 70 10
Email : urbain@lfb.fr



Détection du virus Chikungunya dans des cellules humaines.
Photo : M. Lecuit

MERIAL

Company Size : 5600 staff globally
R&D Staff : Over 745 people globally
Annual sales 2010 : more than $ 2.6 billion

Merial has one of the widest range of veterinary vaccines in the animal health industry. It is the world's leader in vaccines for companion animals. It is a major contributor to the fight against rabies and FMD. The world's single largest selling poultry vaccine is Merial's product VAXXITEK HVT + IBD. In 2010, the company's total global vaccines sales were $840 million, an increase of 5.5% over 2009.
Merial's origins date back to 1897, with the founding of the Institut Biologique Mérieux. In 1947, Merial (IFFA at that time) was the first company to manufacture FMDV vaccines on an industrial scale. It has, since then, been consistently at the forefront of new technologies. Such an advance came from Merial's recognition of the potential for poxviruses as vectors for veterinary vaccines. Soon after smallpox was eradicated in 1986 with the aid of the vaccinia poxvirus, Merial began working in the U.S. to bring this powerful concept to animal diseases. Beginning in the 1990s, Merial designed and developed vaccines that use this safe, efficient and flexible platform. Over 200 million doses based on poxvirus platforms (vaccinia, fowlpox, and canarypox) have been manufactured for administration to mammals all around the world.
Modern biotechnology is vital to the development of new vaccines. Merial is responsible for the introduction of novel vector vaccines against avian influenza, and Marek's and Gumboro diseases. When equine influenza broke out in Australia in 2007, the government chose another Merial vectored vaccine to deal with this threat. The first therapeutic DNA vaccine for the treatment of cancer – in either animals or humans – was developed by Merial for canine melanoma. Recently, Merial developed the first Porcine Circovirus type 2 vaccine and has been at the forefront of the European fight against the bluetongue virus serotypes. It is today the largest supplier of this vaccine in the world.

Product Portfolio in the Area

Dogs	Cats	Horses	Poultry	Swine	Ruminants
EURICAN range (incl. leptospirosis, parvovirus, distemper) IMRAB and RABISIN (rabies) ONCEPT (melanoma) RECOMBITEK range (incl Lyme, distemper, parvovirus)	PUREVAX range (incl. rhinotracheitis, panleucopenia, calicivirus, leukemia)	ProteqFlu (influenza and tetanus) RECOMBITEK range (incl. West Nile Virus, encephalitis, tetanus)	VAXXITEK HVT + IBD (Marek's disease and Gumboro/IBD) GALLIMUNE range (incl Newcastle disease, infectious bronchitis, rhinotracheitis TROVAC (avian influenza) GALLIVAC range (incl. infectious bronchitis, Gumboro, S. enteritidis	CIRCOVAC (PCV2) GRIPOVAC 3 (influenza)	AFTOPOR (FMD) BTVPUR AISap range (bluetongue) TRIVACTON 6 (anti-diarrhea) PASTOBOV (respiratory infections)

BIO R&D Sites

• Merial's Biologicals R&D is primarily located in Lyon, France, and Athens, Georgia. It addresses viral, bacterial and parasite targets in-house and collaborates with many academic and commercial institutions to advance its program.
Merial's activities for the research and development of new veterinary vaccines rely on highly skilled in-house teams, which interface with experts and researchers worldwide, in order to incorporate key new ideas and innovations for bringing better and unique products to the animal health market.

MERIAL
Ellen de Brabander, DR.
Chief Scientific Officer and Global Head of R&D

BIOGRAPHY

Training and academic background

1980 - 1985 Bachelor/Masters in Science – Leiden University (cum laude)
1985 - 1989 Ph.D. Bio-organic Chemistry – Leiden University (cum laude)
1989 - 1990 Post doc Massachusetts Institute of Technology (MIT)
2000 Awarded Gold Medal from Dutch Royal Chemistry Society for total research performance
Inventor of 18 patents

Industry Background

2008 - present Merial Limited – Chief Scientific Officer and Global Head of R&D
2006 - 2008 Intervet – VP R&D and Board Member
1991 - 2006 DSM Fine Chemicals – various positions ending as Chief Technology Officer

Areas of research interest

2010 - present University of Twente – Advisory Board member
2008 - present European Institute of Innovation & Technology (EIT) – Governing Board Member
2001 - 2007 Member of the European Research Advisory Board (EURAB) on behalf of the Netherlands

CONTACTS

Dr. Ellen de Brabander
Chief Scientific Officer and Global Head of R&D
Merial Limited
3239 Satellite Boulevard
Duluth, GA 30096 USA

Tél. : 678.638.3000

MERIAL
Jean-Christophe Audonnet, Dr
Senior Director, Research Strategy & Key Alliances, Bio R&D

BIOGRAPHY

Training and academic background

1980	DVM (Ecole Nationale Vétérinaire d'Alfort, Paris, France)
1981	Certificate of Compared and Animal Immunology (Alfort, France)
1984	Molecular Biology and Genetics degrees (Master's level) Univ. Montpellier, France Certificate of Immunology (Medical School University, Montpellier)
1985	General Virology degree Institut Pasteur Paris, France
1989	PhD degree (Molecular Biology) Lyon University

Industry Background

2008 - present	Senior Director, Research Strategy, External Alliances & Technology Acquisition, Bio R&D Merial Lyon
2006 - 2008	Senior Director, Vaccinomics and Recombinant Vaccines, Discovery Research Merial Lyon
2003 - 2006	Director, Vaccinomics and Virology, Discovery Research, Merial Lyon
2002 - 2003	Director, Molecular Biology & Immunology, Discovery Research. Merial Lyon
2001 - 2002	Director, Molecular Biology and Immunology. Merial Lyon
2000 - 2001	Director (acting) Bio-Analytical Department, BioDevelopment Merial Lyon and Merial Athens (USA)
2000 - 2000	Director, Molecular Biology & Immunology, Discovery Research, Merial Lyon
1997 - 2000	Associate Director, Head of Molecular Biology Department. Merial Lyon
1992 - 1997	Head of the "Molecular Biology Unit" Rhône Mérieux Lyon
1989 - 1992	Senior scientist at Virogenetics, Albany, NY, USA

Areas of research interest

• Main interests are for vaccine vector technologies, expression systems for vaccine antigens, immunological tools, adjuvants and immuno-modulators
• New viral, bacterial and parasite vaccine

CONTACTS

Jean-Christophe AUDONNET
Senior Director, Research Strategy
& Key Alliances, Bio R&D
Merial
254 rue Marcel Merieux
69007 Lyon, France

Tél. : +33 (0)4 72 72 33 79
Email : Jean-christophe.audonnet@merial.com

MERIAL
Jacques Lechenet, DV
Head of Regulatory Affairs New Projects Biological

BIOGRAPHY

Training and academic background

1985	National Veterinary School of Lyon (France). Doctorate
1987	CES in Thorough Special Pharmacology, option pharmacokinetics and clinical pharmacology, Human Biology, Lyon (France)
1988	CES in General Pharmacology, Human Biology, Lyon (France)
1988	AEU in Pharmacovigilance, Human Biology, Lyon (France)
1989	CES in Statistics, Computer Science and Modelization
1989	CES in Methods for Clinical Research and Epidemiology, Human Biology, Lyon
1990	Master's degree in Biological & Medical Sciences (Computer Science, Statistics, & Epidemiology). Master's degree in Biological & Medical Sciences (Pharmacology)

Industry Background

2007 - present	Head of Regulatory Affairs Biologicals New Projects – Merial Lyon
2001 - 2007	Director of Regulatory Affairs Biologicals Europe – Merial Lyon
1996 - 2000	Head of Registration (Biologicals) & Scientific Documentation – Merial Lyon
1991 - 1995	Head of Biological Registration of products intended for ruminants and pigs, of biotechnology products - Rhône Mérieux, Laboratoire IFFA, Lyon
1989 - 1991	part time 50% Head of Quality Assurance for Marketing Authorizations part time Head of Quality Control small animal unit - Rhône Mérieux, Lyon
1989 - 1993	Head of Quality Assurance for Marketing Authorizations-Rhône Mérieux Lyon
1986 - 1989	Assistant lecturer in the chair of Biological and Medical Physics and Chemistry, Ecole Nationale Vétérinaire de Lyon (France).
1985 - 1986	Associated Assistant Lecturer in the chair of Pharmacy Toxicology – ENVL

Chair and active member of Biological group in trade associations (IFAH Europe and SIMV)
Member of expert group on vaccines (French Pharmacopoeia Commission)

Areas of research interest

- Registration of new entities in veterinary immunological field
- Definition of updated facilitating registration system to encourage innovative products in reaching the market
- Regulatory system incorporating science-based assessment

CONTACTS

Jacques Lechenet, DVM
Head of Regulatory Affairs
New Projects Biological
Merial
29 avenue Tony Garnier,
69007 Lyon, France

Tel : +33 (0)4 72 72 33 89
Email : Jacques.lechenet@merial.com

INSTITUT MERIEUX

Company Size : more than 10 000
R&D Staff : 11%
Annual sales 2010 : ≥ € 1.4 billion

The commitment of the Mérieux family to fight infectious diseases goes back to 1897 with the creation by Marcel Mérieux, a pupil of Louis Pasteur of Institut Mérieux.
Institut Mérieux is committing its experience in industrial biology to serve medicine and public health across the globe. To fight against infectious diseases, it imagines and develops new approaches in the fields of diagnostics, immunotherapy, food safety and nutrition.
Through its three bio-industrial companies, bioMérieux, Transgene and Mérieux NutriSciences , working closely with its entities devoted to innovation (Mérieux Développement and ABL Inc.), Institut Mérieux has the potential to offer solutions for new global public health challenges.

Product Portfolio in the Area

- In vitro diagnostics with bioMérieux (clinical diagnostics and industrial microbiology controls in agri-food and biopharmaceutical industry)
- Therapeutic vaccines and immunotherapy products with Transgene
- Food safety and quality analyses to prevent microbial contaminations, CRO and R&D in the field of nutrition with Mérieux NutriSciences

R&D Focus Portfolio and Prospective in this Area

See bioMérieux and Transgene's R&D programs in that field

Places of Worldwide Investigations

17 R&D sites in the world
EU, North and South America, China

INSTITUT MERIEUX
Christian Brechot, DV
Vice-President for Medical and Scientific Affairs

BIOGRAPHY

Training and academic background

1989-2001	Professor of cell biology, Necker School of Medicine – University Paris V
1992	Member of «Institut Universitaire de France», Paris
1993-2001	Director, Inserm research unit 370, Necker School of Medicine, Paris
1997-2001	Head, Liver Unit, Necker Hospital, Paris
1990-1998	Head of Hybridotest laboratory, Pasteur Institute, Paris
1998-2001	Head of the National Reference Center on the molecular epidemiology of viral hepatitis, Pasteur Institute and Inserm U370, Paris
2001-2007	Director General of the French institute for health and medical research (Inserm)
2002-2006	President of the French National Consortium for Research in Genomics (CNRG)
From January 2008	Vice-President for Medical and Scientific Affairs Institut Mérieux Biomedical Company

Industry Background

Christian Bréchot holds MD Ph.D degrees. Beginning in 1981 he studied molecular biology, virology, and cellular biology at the laboratory of Pierre Tiollais at the Pasteur Institute, and at the Necker Faculty of Medicine; he obtained his Ph.D in biochemistry from the University of Paris VII in 1985. In 1989 he became full professor of Cell Biology and Hepatology, and in 1997 he was appointed head of the clinical department of liver diseases at the Necker-Enfants Malades Hospital. He has been in charge of a research unit at the Necker Faculty of Medicine, jointly supported by Inserm (the French national biomedical research agency), Paris Descartes University, and the Pasteur Institute; he was also head of the National Reference Centre on viral hepatitis from 1998 to 2001.

From 2001 to 2007, Christian Bréchot has acted as General Director of Inserm, the French National Agency for biomedical research.
From 2008, he has been appointed as Vice-president in charge of Medical and Scientific affairs of the Institut-Mérieux company. Institut-Merieux is a holding company which merges the efforts of four companies involved in in vitro diagnostics, preventive and therapeutic vaccines, as well as food safety (Biomérieux, Transgene, Silliker, Advanced Bioscience Laboratory).

CONTACTS

Christian Bréchot
Institut Mérieux
17, rue Bourgelat
69002 Lyon, France

Tel : 04 78 87 74 44
Email: christian.brechot@institut-merieux.com

INSTITUT MERIEUX
Christine M'Rini
Scientific Director

BIOGRAPHY

Training and academic background

2006-2008 Deputy Counselor and then, Head of the Science and Technology department of the French Embassy in China. French Diplomat during that period of time (Beijing, China).

1994-2006 Associate Professor of Human Physiology at the Toulouse-Rangueil Medical school and Paul-Sabatier University (Toulouse, France). On secondment from 2006

2002 French national accreditation for supervision of PhD students (French HDR), Université Paul Sabatier, Toulouse, France

1997-1998 Post-doctoral training, as supported laureate of the United Nations in the laboratory of Pr Ulrich Von Andrian, at Harvard Medical School, Boston, USA

1996 Philosophy Doctorate (PhD), University Paul Sabatier, Toulouse, France

1989 Medicine Doctorate (MD), School of Medicine Toulouse-Rangueil, France

Industry Background

From Sept. 2008 Scientific Director of the Institut Mérieux (www.institut-merieux.com). (on secondment from the French Ministries of Higher Education and Research and of Health). Definition, implementation and management of transversal, R&D programs, at the interface of the group companies, particularly in the areas of infectious diseases, cancer, cardiovascular diseases and food safety but also in the areas of biomarkers and personalized medicine, new technologies and nutrition on health.

Areas of research interest

Infectious diseases, diagnostic and immunotherapy

CONTACTS

Tél. : 33 (0) 6 18 78 56 17,
Email. : christine.mrini@institut-merieux.com

BIOMERIEUX

Company Size: 6,300 employees
R&D Staff: > 900
Annual sales 2010: € 1.357 billion

A world leader in the field of in vitro diagnostics for over 45 years, bioMérieux provides diagnostic solutions (reagents, instruments, software) which determine the source of disease and contamination to improve patient health and ensure consumer safety. Present in over 150 countries, through 39 subsidiaries and distributors, bioMérieux has the largest network in infectiology in the world.

Product Portfolio in the Area

bioMérieux is the world leader in microbiology with a broad range of manual and automated diagnostic solutions. Its product portfolio also includes infectious disease diagnostics based on immunoassay and molecular biology technologies. Among its best-known systems: VIDAS®, with 91 clinical parameters and the world's largest installed base of immunoassay systems; VITEK® 2 for fully automated bacterial identification and antibiotic susceptibility testing; and BacT/ALERT®, automated platform for direct blood culture.

R&D Focus Portfolio and Prospective in this Area

Developing new solutions for fighting infectious diseases is among the Group's major public health priorities.

- New generations of platforms under development, with high medical-value parameters that bring strategic information to clinicians.
- New solutions to reduce time to results so clinicians can select the optimal treatment more quickly:
  - a fully integrated molecular diagnostics system
  - mass spectrometry integrated with a platform for antibiotic susceptibility testing
  - novel middleware to connect diagnostic systems with the laboratory information system and provide patient results in real-time to clinicians
  - integration of new imaging technologies for microbiology applications
  - exploration of genomic sequencing as possible IVD tool

Places of Worldwide Investigations

- About 900 employees are working in R&D across 11 sites worldwide: Europe, United States, China, Brazil, etc…
- bioMérieux has international interdisciplinary partnerships with public and private research organizations, the healthcare community, biotechnology companies, the pharmaceutical industry and new players in diagnostics from the fields of information and imaging technologies.

BIOMERIEUX
Alain Pluquet
Chief Technology Officer

BIOGRAPHY

Training and academic background

1978 - 1985	Professional music training at Conservatoire National de Musique de Paris (several first prizes) and at University Paris-IV La Sorbonne (Master)
1986 - 1989	University degree course in Mathematics and Physics at Paris-VI Pierre et Marie Curie Top in one's year
1990	Master 2 in Field-Particles-Matter (Ecole Polytechnique, Paris VI-VII-XII). Top in one's year
1991 - 1993	PhD thesis in particle physics (Fermilab/USA and CEA/France)

Industry Background

2010 - today	bioMérieux Chief Technology Officer
2007 - 2009	CEA*, Head of Sensor and Signal Technologies Department (300 people)
2004 - 2006	CEA, Head of Instrumentation Technologies Division (80 people)
2001 - 2003	CEA, Deputy head of Applications of Radioisotopes Division (50 people)
2000	CEA, Head of Modelization of Particle-Matter Interactions Laboratory (15 people)
1999	CEA: Project leader (applied mathematics and software development)
1994 - 1998	CEA, Particle physicist in international collaborations, at Fermilab/USA (top quark discovery) and at CERN (neutrino physics)

** CEA stands for Commissariat à l'Energie Atomique, the French Alternative Energies and Atomic Energy Commission.*

Areas of research interest

- Sciences: mathematics, high energy physics, microbiology, molecular biology
- Technologies: information technologies, connectivity, high performance computing, data bases and machine learning, modelization and simulation, sensors, electronics, signal and data processing
- About 70 papers in peered reviews

CONTACTS

Tél. : +33 4 78 79 73 73
Email : alain.pluquet@biomerieux.com

BIOMERIEUX
Alex van Belkum
Global Director Microbiology Research

BIOGRAPHY

Training and academic background

1977	Graduation Atheneum B Scholengemeenschap Bonaventura-Kijckenborg Leiden, The Netherlands.
1980	Kandidaats-examination Biology, University of Leiden, The Netherlands
1983	Doctoral examination Biochemistry, University of Leiden, The Netherlands
1988	PhD examination Biochemistry, University of Leiden, The Netherlands
Thesis title	«Biochemical and biophysical studies on pseudoknotted structures in plant viral RNAs»
1989	Course on the handling of experimental animals (Dutch Art.9 License) Veterinary Faculty, University of Utrecht, The Netherlands
1996	PhD examination Molecular Microbiology, Erasmus University, Rotterdam, The Netherlands.
Thesis title	«Application of PCR mediated DNA typing in the molecular epidemiology of medically important microorganisms»
1979-1983	Student Assistant (nine month periods) at three Institutions of the University of Leiden: **1.** Department of Biology, Laboratory for Molecular Botany **2.** Department of Medicine, Sylvius Laboratories for Medical Research. **3.** Department of Chemistry, Laboratory of Biochemistry
1983-1987	Scientific Assistant, Department of Chemistry, Laboratory of Biochemistry, University of Leiden, The Netherlands
1987-1988	Visiting Scientist, Department of Chemistry, Laboratory of Biochemistry, University of Leiden, The Netherlands
1988-1990	Research Scientist, Institute for Applied Radiobiology and Immunology, Primate Center TNO (currently Biomedical Primate Research Centre BPRC-TNO), Department of Chronic and Infectious Diseases, P.O. Box 5815, 2280 HV Rijswijk, The Netherlands.
1990-1991	Head Department of Infectious Diseases, MedScand Ingeny B.V., Zernikedreef 9, 2300 AR Leiden, The Netherlands
1991-1994	Staff member Department of Molecular Biology, Diagnostic Centre "Stichting Samenwerkende Delftse Ziekenhuizen SSDZ", General Hospital «Reinier de Graaf Gasthuis», Reinier de Graafweg 7, 2600 GA Delft, The Netherlands
1998	Visiting scientist (three months). Institute for Molecular Medicine, Molecular Infectious Diseases Group, Department of Paediatrics, John Radcliffe Hospital, Oxford, United Kingdom (Head Prof.Dr. E.R. Moxon)
1994-2010	Staff member Institute of Clinical Microbiology and Antimicrobial Therapy, Faculty of Medicine and Health Sciences, Erasmus University Rotterdam; Erasmus university Medical Center Rotterdam EMCR, Department of Medical Microbiology & Infectious Diseases
2002-2010	Head Unit Research and Development of the Department mentioned above
2003-present	(Honorary) Professor of Molecular Microbiology, Erasmus MC, Department of Medical Microbiology & Infectious Diseases; Inaugural address: "Moleculaire filatelie in de medische microbiologie"

Industry Background

2010-present	bioMérieux

Areas of research interest

Academic research interests are reflected from the references given below. Since my bioMerieux appointment in 2010 research interests have shifted more profoundly into the direction of technology- and test-innovation in the field of diagnostic microbiology.

1. Axonal variant of Guillain-Barre syndrome associated with Campylobacter infection in Bangladesh. Islam Z, Jacobs BC, van Belkum A, Mohammad QD, Islam MB, Herbrink P, Diorditsa S, Luby SP, Talukder KA, Endtz HP. Neurology. 2010 Feb 16;74(7):581-7.
2. Preventing surgical-site infections in nasal carriers of Staphylococcus aureus. Bode LG, Kluytmans JA, Wertheim HF, Bogaers D, Vandenbroucke-Grauls CM, Roosendaal R, Troelstra A, Box AT, Voss A, van der Tweel I, van Belkum A, Verbrugh HA, Vos MC. N Engl J Med. 2010 Jan 7;362(1):9-17.
3. Immunogenicity of toxins during Staphylococcus aureus infection. Verkaik NJ, Dauwalder O, Antri K, Boubekri I, de Vogel CP, Badiou C, Bes M, Vandenesch F, Tazir M, Hooijkaas H, Verbrugh HA, van Belkum A, Etienne J, Lina G, Ramdani-Bouguessa N, van Wamel WJ. Clin Infect Dis. 2010 Jan 1;50(1):61-8.
4. Correlation of bacterial colonization status between mother and child: the Generation R Study. Lebon A, Moll HA, Tavakol M, van Wamel WJ, Jaddoe VW, Hofman A, Verbrugh HA, van Belkum A. J Clin Microbiol. 2010 Mar;48(3):960-2. Epub 2009 Nov 25.
5. Dominance of CTX-M-2 and CTX-M-56 among extended-spectrum beta-lactamases produced by Klebsiella pneumoniae and Escherichia coli isolated in hospitals in Paraguay. Khan MA, Lemmens N, Riera E, Blonk T, Goedhart J, Van Belkum A, Goessens W, Hays JP, Van Westreenen M. J Antimicrob Chemother. 2009 Dec;64(6):1330-2. Epub 2009 Oct 23. No abstract available.

CONTACTS

Prof.Dr. Dr. Alex van Belkum
bioMérieux
R&D Director La Balme Microbiology Unit
Global Director Microbiology Research
3, Route de Port Michaud
38390 La Balme les Grottes
France

Tél. : +33474952656
Mob. : +33609487905
Fax : +33474952599
Email : alex.vanbelkum@biomerieux.com

BIOMERIEUX
Jean Deleforge
Vice President Molecular Unit

BIOGRAPHY

Training and academic background

1981 Doctor in Veterinary Medicine, Maisons-Alfort
1982 Thesis in Veterinary Medicine, Créteil University

Industry Background

Since 2009 Corporate Vice President of Molecular Unit at bioMérieux, a world leader group specialized in the field of in vitro diagnostics for medical and industrial applications.

2000-2008 Jean Deleforge has worked at bioMérieux where he successively held positions at Portfolio Management, Business Development and BioMarker Research. He is member of the Board of several Biotech companies involved in in vitro diagnostic or therapeutics.

Before 2000 he has spent fifteen years in drug, vaccines development and new technologies for the veterinary market. He held Senior Management positions in Preclinical & Clinicaldevelopment and Project management at Vetoquinol and Merial

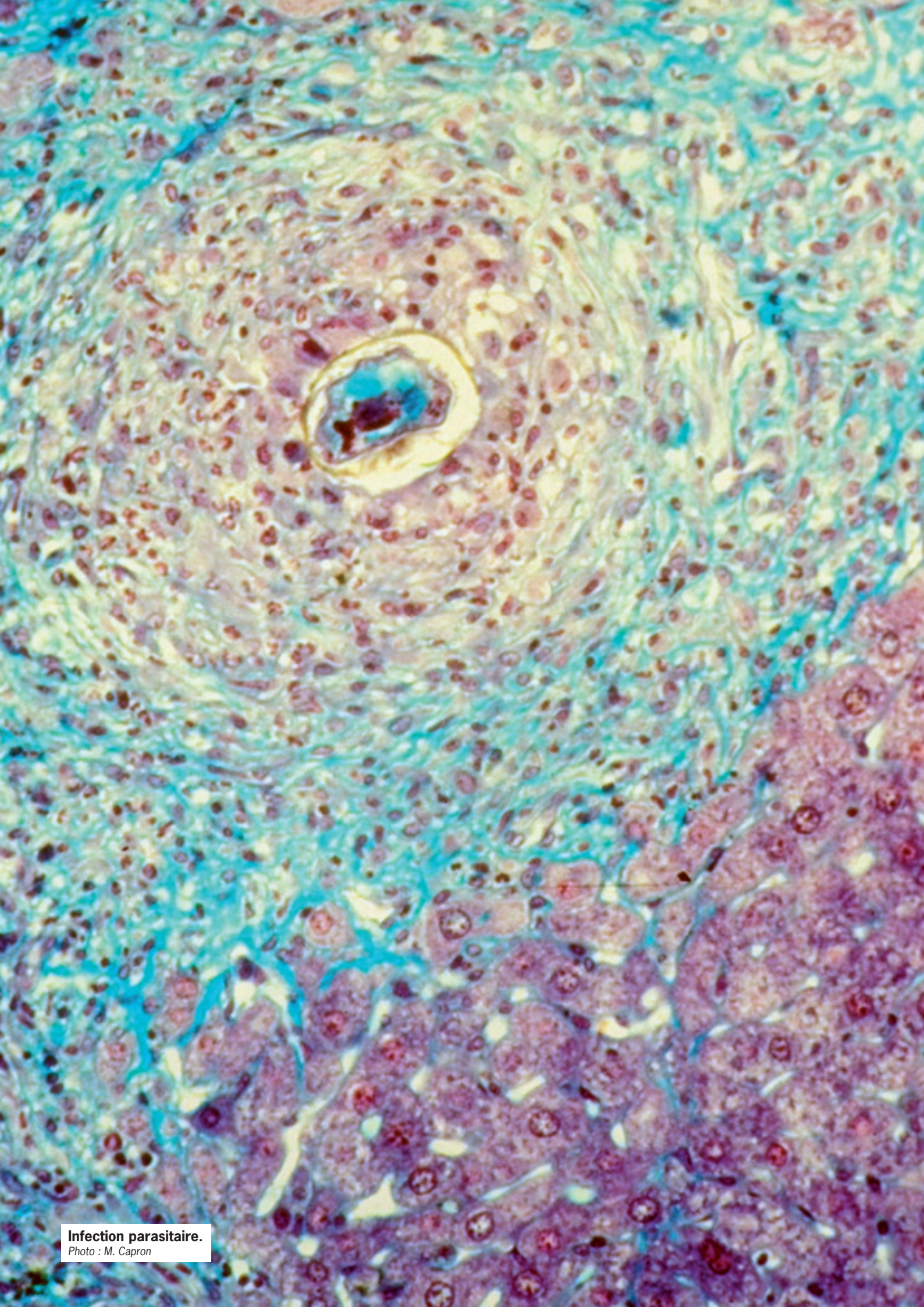
Areas of research interest

- Molecular Markers of Infectious Diseases
- Diagnostic technologies
- Biomarkers of sepsis
- Molecular markers for antibiotic susceptibility

CONTACTS

Jean Deleforge
Vice President Molecular Unit bioMérieux
Rue des Berges
Grenoble 38000 France

Tél. : + 33 (0)4 78 87 70 76



Infection parasitaire.
Photo : M. Capron

MSD

Merck & Co., Inc., Whitehouse Station, NJ, USA et Schering-Plough Corporation, Kenilworth, NJ, USA are now one company; which is known as Merck in the United States and Canada. Everywhere else, we are known as MSD. Merck & Co., Inc remains the name of the publicly traded company.
Company Size : 94,000 employees
R&D Staff : Approximately 15,500 people are employed in the Company's research activities
External licensing : In 2010, 46 significant deals were signed with external partners in 2010
Annual sales 2010 : $ 46 billion **2010 R&D expenses :** $ 8.1 billion

MSD is a global leader in delivering innovative health solutions through its medicines, vaccines, biologic therapies, and consumer and animal products.

History of Commitment in the field of INFECTIOLOGY

MSD has several decades of research and development in antibiotics, antifungals, and antivirals to deliver a portfolio of products that change the standard of care for infections with highest unmet need. This includes Ivermectin, Imipenem, Caspofungin, Indinavir, Efavirenz, Raltegravir, and Boceprevir. Indinavir (CRIXIVAN) is one of the first generation HIV protease inhibitors, which has contributed to a major change in the HIV treatment paradigm, Highly Active Antiretroviral Retroviral Therapy. Raltegravir (ISENTRESS) is the first and currently the only marketed HIV integrase inhibitor in both treatment-naïve patients and in patients failing therapy with triple-class resistant virus. Boceprevir is one of the first direct antiviral agents against Hepatitis C, added to the standard of care of Peg-interferon and Ribavirin, for the treatment of naïve and treatment failure patients. The Marketing Authorization Application (MAA) for boceprevir is under assessment by the European Medicines Agency through an accelerated timeline.
With the focus to discover and develop best-in-class therapies to treat HIV, Chronic Hepatitis C, and important bacterial and antifungal diseases, MSD is committed to advance the science of Infectious Diseases. In addition, MSD has invested significant effort in developing an HIV vaccine, and has developed several important vaccines such as GARDASIL* and ROTATEQ* .

** commercialized by Sanofi Pasteur MSD in France*

Product Portfolio in the Area

• Ivermectin, Moxifloxacin**, Ciprofloxacin**, Norfloxacin, Imipenem, Ertapenem, Caspofungin, Posaconazole, Indinavir, Efavirenz, Raltegravir, Peginterferon alfa-2b, Ribavirin, Boceprevir, and HIV and HCV compounds that are in early stage of development.

*** commercialized by Bayer in France*

R&D Focus Portfolio and Prospective in this Area

• Broad focus including antiviral, antibacterial, antifungal, and antiparasitic agents, with special attention to pathogens which present greatest unmet need such as HIV and HCV.

Places of Worldwide Investigations

• MSD's research and clinical development program is global and involves countries and scientific leaders from North America, Europe, South America, Africa, Australia, and Asia.

MERCK
Roger J. Pomerantz, M.D., F.A.C.P
Global Franchise Head for Infectious Diseases and Senior Vice President

BIOGRAPHY

Training and academic background

Education

1978 B.A. Johns Hopkins University (Major in Biology), Baltimore, MD
1982 M.D. Johns Hopkins School of Medicine, Baltimore, MD

Post-Doctoral Training: Internship, Residencies and Fellowships

1982-1983 Intern in Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1983-1984 Junior Resident in Internal Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1984-1985 Senior Resident in Internal Medicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1985-1986 Clinical Fellow, Infectious Disease Unit, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1986-1987 Research Fellow (Drs. Martin Hirsch and David Ho's Laboratories), Virology, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1988 Chief Medical Resident, Massachusetts General Hospital, Harvard Medical School, Boston, MA
1989-1990 Research Fellow and Visiting Scientist [Dr. David Baltimore's (Nobel Laureate) Laboratory], Molecular Virology, Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology (M.I.T.), Cambridge, MA
1997-2005 Professor of Biochemistry and Molecular Pharmacology, Jefferson Medical College, Thomas Jefferson University, Philadelphia, PA

Industry Background

2009-2010 Global Head of Infectious Diseases (including Vaccines), Johnson & Johnson, Inc
This includes all companies in J&J R&D for virology, tuberculosis, anti-bacterials, and all other anti-infectives world wide.
2005–2010 President, Tibotec Pharmaceuticals Inc. (Research and Development Pharmaceutical Company for Virology and Infectious Diseases, a subsidiary of Johnson and Johnson, Inc.)
Locations: Yardley, PA, U.S.A., Mechelen, Belgium, and Cork, Ireland.
The company has R&D activities to develop anti-viral and anti-microbial agents, against diseases of high unmet medical needs (including HIV, HCV, RSV, TB and other resistant human pathogens)

Areas of research interest

• HIV • HCV • Antibacterials • Antifungals • Anti Parasitics • Biologicals for I.D.

CONTACTS

Roger J. Pomerantz, M.D., F.A.C.P
Global Franchise Head for Infectious Diseases
and Senior Vice President
Merck & Co, Inc.
Mail Code: UG4C-03
351 North Sumneytown Pike
North Wales, PA 19454

Tél. : +267-305-3099

MERCK
Bach-Yen Nguyen, M.D.
HIV Section Head

BIOGRAPHY

Training and academic background

Education

1980	Carleton College, Northfield, Minnesota (USA): Chemistry major, Bachelor of Arts
1985	University of Minnesota Medical School, Minneapolis, Minnesota: Doctor of Medicine

Medical and specialty training

1980-1981	Junior Scientist at the University of Minnesota Medical School, Minnesota USA
1985-1988	Intern and Resident in Internal Medicine, The New York Hospital-Cornell Medical Center, New York, New York USA
1988-1991	Medical Staff Fellow at the National Institute of Allergy and Infectious Diseases, Laboratory of Parasitic Diseases, Bethesda, Maryland USA
1991-1995	Senior Clinical Investigator, National Cancer Institute, Bethesda, Maryland USA

Industry Background

07/2010-present	HIV Section Head, Clinical Research
03/2003-07/2010	Senior Director, Clinical Research
11/1998-03/2003	Director, Clinical Research
11/1995-11/1998	Associate Director, Clinical Research

Areas of research interest

- HIV pathogenesis; treatment strategies; resistance; treatment for HIV/HCV
- HCV pathogenesis; treatment strategies; resistance

CONTACTS

Bach-Yen Nguyen, M.D.
HIV Section Head
Infectious Diseases, Clinical Research
Merck Research Laboratories
351 N. Sumneytown Pike
North Wales, PA 19454-2505

Tél. : +267-305-7278
Email : bachyen_nguyen@merck.com

MERCK
Michael D. Miller, Ph.D.
Infectious Disease Site Lead - HIV

BIOGRAPHY

Training and academic background

1993-1997		The Salk Institute for Biological Studies, La Jolla, CA Research Associate, laboratory of Dr. Frederic D. Bushman,
1992		Duke University, Durham, NC Research Associate, laboratory of Dr. Michael S. Krangel
1991	Ph.D.	Harvard University, Division of Medical Sciences, Boston, MA Immunology. Thesis adviser: Michael S. Krangel, Ph.D.
1986	B.A.	University of Kansas, Lawrence, KS Microbiology (With Highest Distinction and Departmental Honors)

Industry Background

2010-present	Site Lead – Infectious Disease/HIV, Merck Research Laboratories
2005-2010	Director, Department of Antiviral Research, Merck Research Laboratories
2004-2005	Senior Research Fellow, Merck Research Laboratories
2000-2004	Research Fellow, Merck Research Laboratories
1997-2000	Senior Research Biochemist, Merck Research Laboratories

Areas of research interest

- HIV and HCV drug discovery and development
- Antiviral drug resistance
- Pharmacokinetic/pharmacodynamic relationships
- HIV latency
- Role of host factors in HIV replication

CONTACTS

Michael Dean Miller, Ph.D.
Infectious Disease Site Lead - HIV
Merck Research Laboratories, PO Box 4, WP42-313
West Point, PA 19486

Tél. : +215-652-0480
Email : michael_miller1@merck.com

NOVARTIS

Company Size : 119418 employees **Countries :** 140
Headquarters : Basel, Switzerland **R&D Investment :** $ 8.1 billion
Annual sales 2010 : $ 50.6 billion **Net income :** $ 10.0 billion

The Pharmaceutical Division is organized into global business franchises responsible for the marketing of various products as well as a business unit called Novartis Oncology responsible for the global development and marketing of oncology products.
The Pharmaceutical Division is the largest contributor among the four divisions of Novartis and reported consolidated net sales of USD 30.6 billion in 2010, which represented 60% of the Group's net sales.
The Division is made up of approximately 80 affiliated companies, which together employed 58 424 full time equivalent associates as of December 31, 2010 and sells of products in approximately 140 countries.
The product portfolio of the Pharmaceuticals Division includes more than 60 key marketed products, many of which are leaders in their respective therapeutic areas. In addition, the division's portfolio of development projects includes 147 potential new products and new indications or new formulations for existing products in various stages of clinical development.

We seek to constantly innovate

Focusing on unmet medical needs inspires us to connect science with customer insights to develop new products and drive industry standards

- Unrivaled pipeline with approximately 147 projects in clinical development
- Most US and EU approvals in the industry for new molecular entities since 2007
- One of the industry's biggest investors in research
  - ➜ 16% of net sales invested in R&D each year since 2007
- Innovation is a key priority across Novartis businesses and functions

History of Commitment in the field of INFECTIOLOGY

We are committed to discovering new antimicrobials to battle antibiotic resistance in both gram positive and gram negative organisms using novel mechanisms of action, and also to focus on research and product development for unmet medical needs in the area of viral infections e.g. Hepatitis C, Hepatitis B and Respiratory Syncytial Viruses.
The Infectious Disease (ID) Group seeks to develop more effective treatments for viral infections through a better understanding of the mechanism of viral replication. Using innovative approaches, the group targets both host and viral factors. Current in-house research efforts are focused on hepatitis C, an area in desperate need of more effective and better tolerated treatments. Scientific approaches include well-known viral targets such as the NS3 serine protease, as well as other Novartis-specific compound opportunities.
Using a combination of innovative approaches and fundamental research into the mechanisms of bacterial drug resistance, the group is developing new classes of antibacterial agents with novel mechanisms of action to address this growing medical need. Our efforts are directed towards the discovery of antimicrobial drugs that act by completely new mechanisms of action, to minimize cross-resistance to currently used antibiotics.
The ID Group concentrates on viral infections such as the Hepatitis C virus, the Respiratory Syncytial Virus, and Human Cytomegalovirus, as well as multi-resistant bacterial infections such as Clostridium difficile, Staphylococcus Aureus, and gram-negative pathogens.
The Novartis Institute for Tropical Diseases aims to discover novel treatments and prevention methods for major tropical diseases. In developing countries where these diseases are endemic, Novartis will make treatments readily available, without profit, to poor patients.
NITD has state-of the-art discovery technology. As a major center of excellence for drug discovery, NITD will offer exceptional teaching and training opportunities for post-doctoral fellows and graduate students.

Product Portfolio in the area

Marketed Products in the area of Infectious Diseases

- Cubicin® (daptomycine), anti bacterial
- Sebivo® (telbivudine), anti viral
- Egaten® (triclabendazole), anti-parasitic
- Riamet® (Artemether /lumefantrine), antimalarial agent

Products in Development in the area of Infectious Diseases

• **DEB025 (alisporivir)** is a cyclophilin inhibitor for the treatment of hepatitis C virus infection (HCV). DEB025 was in-licensed from Debiopharma in early 2010. A Phase IIb study in HCV genotype 1 treatment naïve patients was completed in 2010 and the results of sustained viral response at 24 weeks were presented to health authorities during the fourth quarter. The FDA and EMA supported a Phase II program for DEB025, which is planned to start in early 2011.

• **PTK796 (omadacycline)** is an antibiotic in-licensed from Paratek Pharmaceuticals Inc. The compound is an aminomethylcycline, derived from tetracycline, which is not affected by the common mechanisms of tetracycline resistance and has demonstrated in vitro activity against resistant bacterial pathogens that most commonly cause complicated skin and skin structure infections (Staphylococcus aureus) and community acquired pneumonia (Streptococcus pneumoniae). The antibiotic is also active against Heamophilus influenzea and many anaerobes. PTK796 is currently entering Phase III development as an intravenous infusion with oral tablet follow on to treat complicated skin and skin structure infections. Novartis has gained exclusive worldwide rights to market PTK796.

R&D Focus Portfolio and Prospective in this area

- Viral infections e.g. Hepatitis C, Hepatitis B, human Cytomegalovirus, and Respiratory Syncytial Viruses.
- Multi-resistant bacterial infections such as clostridium difficile, staphylococcus aureus, and gram-negative pathogens.
- Tropical Diseases aims to discover novel treatments and prevention methods for major tropical diseases.

Places of Worldwide Investigations

1- Novartis Institute for BioMedical Research (NIBR) The NIBR is the Global Pharmaceutical research organization of Novartis with approximately 6000 scientists and physicians around the world. Research at NIBR is focused on discovering innovative new drugs that can change the practice of medicine. Headquartered in the United States in Cambridge (Massachusetts), the NIBR research networks includes a major research center in Basel and additional centers in East Hanover (New Jersey), Emeryville (California), La Jolla (California), Siena (Italy), Horsham (UK), Singapore and Shanghai (China).

Commitment to Diseases of the Developing World

Novartis Institute for Tropical Diseases (NITD) in Singapore and Novartis Vaccines Institute for Global Health (NVGH) in Italy, are fully dedicated to discovering vaccines and treatments for neglected diseases.

2- Novartis Institute for Tropical Diseases (NITD) founded in 2002 in Singapore, aims to discover novel treatments and prevention methods for major tropical diseases in developing countries where diseases are endemic. The NITD research projects focus on dengue, tuberculosis and malaria.

3- Novartis Vaccines Institute for Global Health (NVGH) in Italy was opened in 2008 and focus on neglected diarrheal diseases which are particularly devastating in developing countries. The NVGH shares world-class facilities and technologies with the Novartis Vaccines Division's research headquarters and partners with universities, research institutes and other public and private organizations.

4- Novartis Molecular Diagnostics (MDx) Recent advances in biology and bioinformatics have led to a much deeper understanding of the genetic underpinnings of disease and drug targets. Novartis Molecular Diagnostics (MDx), an integrated unit within Novartis Pharmaceuticals, is working to capitalize on these scientific advances to develop innovative diagnostic tests which potentially could improve physician's ability to optimize patient outcomes and may enable physicians to administer the right treatment to the right patient at the right time.

NOVARTIS
Thierry Diagana, Ph.D.
Drug Discovery- Director

BIOGRAPHY

Training and academic background

1995	Ph.D. in Molecular Biology, University of Paris V - Paris, France
1991	M.S. (D.E.A) in Life and Health Sciences, University of Paris V - Paris, France
1989	B.S. (Maîtrise) in Biochemistry, University of Paris VII - Paris, France

Industry Background

Current	Director Drug Discovery Novartis Institute for Tropical Diseases, Singapore
01/2009-10/2010	Malaria Program
01/2007-01/2009	Malaria Project Manager
2004-2007	Senior Scientist, Institute for OneWorld Health, San Francisco, California
2001-2004	Research Scientist, Exelixis, Inc., South San Francisco, California

Areas of research interest

Thierry Diagana carried out his developmental and molecular biology Ph.D. work at the Pasteur Institute (Paris, France) and went on to complete his post-doctoral studies at the Salk Institute (La Jolla, California). In 2001, he joined Exelixis (South San Francisco, California) a biotech company focused on oncology. Using various genetically tractable model organisms, he identified and validated new small molecules targets for anti-angiogenic and rare cancers therapeutics. He then joined the non-profit pharmaceutical company—The Institute for OneWorld Health (San Francisco, California)—where he contributed to the development of paromomycin as a new treatment for visceral leishmaniasis. He was also a member of the project team that received a grant from the Bill and Melinda Gates Foundation to develop a new biosynthetic method to produce more affordable artemisinin antimalarial drugs. In 2007, he moved to Singapore to join the Novartis Institute for Tropical Diseases (NITD) to lead the NGBS* malaria program that is supported by a five-year grant from the Wellcome-Trust, the Medicines for Malaria Venture and the Singapore Economic Development board. The NGBS research consortium discovered several novel and first-in-class antimalarial drug candidates, one of is currently undergoing testing in human clinical trials. He currently holds the position of Director Drug Discovery and is in charge of hit-to-lead and lead-optimization programs for Tuberculosis, Dengue and Malaria drug discovery at NITD.

**NGBS (Novartis Institute for Tropical Diseases, Genomics Institute of the Novartis Research Foundation, Biomedical Primate Research Center, Swiss Tropical & Public Health Institute)*

CONTACTS

Thierry Diagana, Ph.D.
Drug Discovery- Director
Novartis Institute for Tropical Diseases Pte Ltd
10 Biopolis Road
#05-01 Chromos, Singapore , 138670

Tél. : +65 67222988
Email : thierry.diagana@norvatis.com

NOVARTIS
Kai Lin, Ph.D.
Senior Investigator & Virology Group Head

BIOGRAPHY

Training and academic background

1999 Ph.D. in Biochemistry, University of Pennsylvania, Philadelphia, PA, USA
1994 B.S. in Biochemistry, NanKai University, China

Industry Background

2004 - now Novartis Institutes for Biomedical Research, Inc., Cambridge, MA, USA
2006 - now Virology Group Head
2004 - 2006 Lab Head
Established the first virology lab at Novartis, managed a research group of 3 labs and 14 scientists
Developed strategy and led HCV drug discovery efforts at Novartis targeting both viral and host factors, managed both internal and external programs involving multi-disciplinary teams of over 100 FTEs
Responsible for IND-enabling preclinical research on cyclophilin inhibitors, currently in Ph III trials
Provided scientific leadership on antiviral research focusing on host-viral interactions
Responsible for clinical virology research, particularly resistance analysis for HCV and HBV
Evaluated opportunities for the treatment of respiratory viral infections and opportunistic infections in transplantation
2000 - 2004 Vertex Pharmaceuticals Inc., Cambridge, MA, USA
2000 - 2002 Staff Investigator
2002 - 2004 Investigator
A key contributor to the discovery of telaprevir (VX-950), the first-in-class HCV protease inhibitor
Responsible for virology support for the HCV protease program
Developed novel in vitro HCV replication system and cell-based assays
Provided preclinical support for the development of IMPDH inhibitors

Areas of research interest

- Hepatitis C virus
- Host-viral interactions

CONTACTS

Kai Lin, Ph.D.
Senior Investigator & Virology Group Head
Novartis Institutes for Biomedical Research, Inc.
500 Technology Square
Cambridge, MA 02451, USA

Tél. : +1 617-871-7579
Email : kai.lin@novartis.com

NOVARTIS
Salah-Dine Chibout, Dr.
Deputy Head Translational Sciences Europe

BIOGRAPHY

Training and academic background

1993 Ph.D in Molecular Immunology, Biozentrum Basel

Industry Background

2010-present Novartis Institues for BioMedical Research
Global Head of Therapeutic Areas in Preclinical Safety

2008-present Novartis Institues for BioMedical Research
Deputy Head of Translational Science in Europe which is including
Preclinical Safety, DMPK, Translational Medicine Biomarker Development Departments

2006-present Novartis Institues for BioMedical Research
Global Head of Investigative Toxicology and member of the Integrative
Safety Assessment board

2003-2006 Novartis Institues for BioMedical Research
Unit Head Toxico and Pharmacogenomics in Biomarker Development

1994-2003 Sandoz (Novartis)
Group Head of the molecular toxicology department in Preclinical Safety

1992-1994 Hoffmann La Roche

Discovery in Dermatology

1990-1992 Sandoz

Toxicology Department

- Member of the Integrative Safety Assessment board
- Representing Novartis at the Research Director Board of the EFPIA
- Board member of the Innovative Medicine Initiatives (IMI)

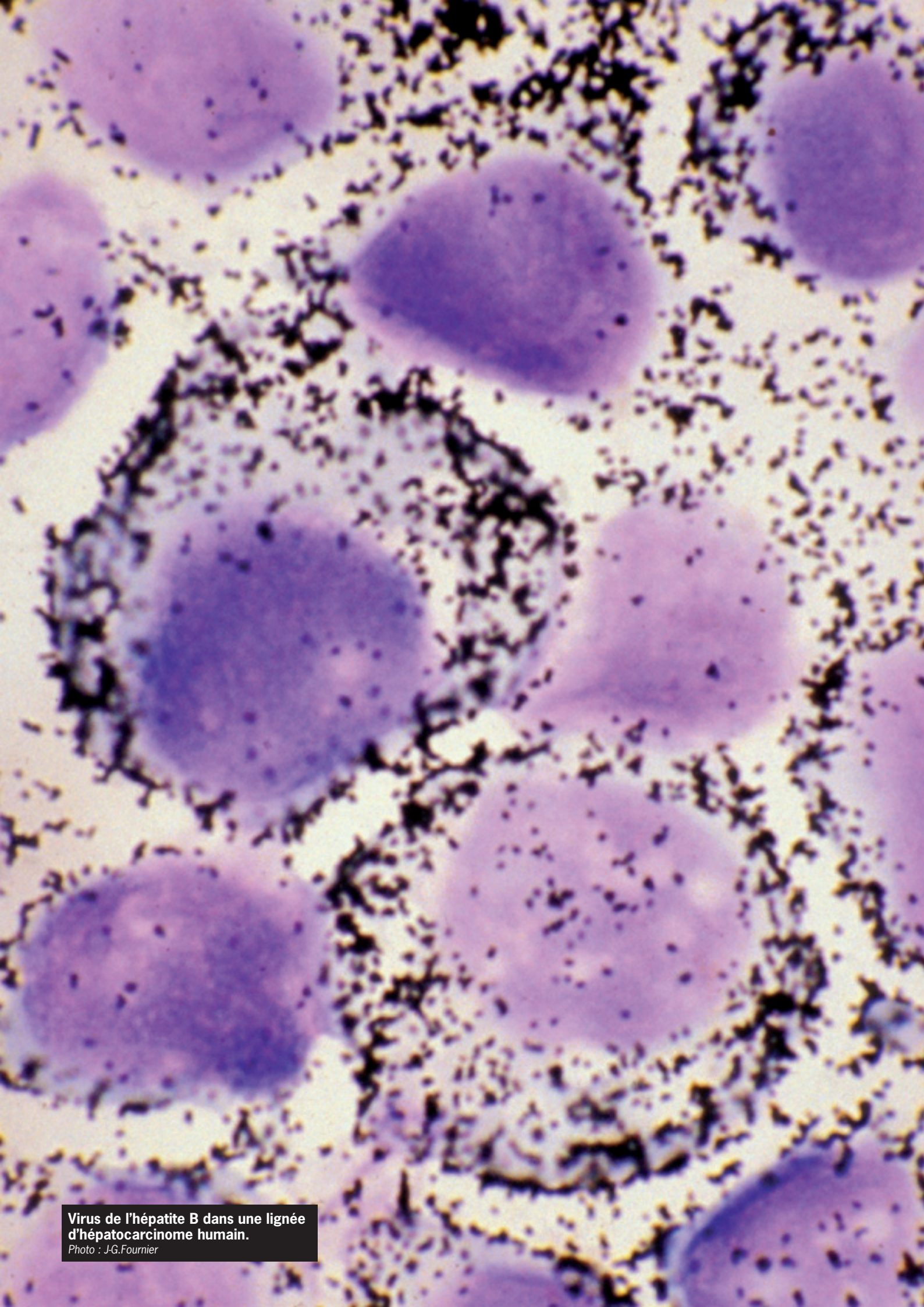
which is the largest public-private partnership with the European commission

Areas of research interest

- Toxicology
- Pharmacogenetics
- Drug Safety

CONTACTS

Deputy Head Translational Sciences Europe
Global Head Investigative Toxicology
Global Head Preclinical Safety Therapeutic Areas
Novartis Pharma AG
Novartis Institutes for BioMedichal Research
Klybeckstrasse 141
CH – 4057 Basel, Switzerland



Virus de l'hépatite B dans une lignée d'hépatocarcinome humain.
Photo : J-G.Fournier

PFIZER

R&D Budget 2010 : $ 9.4 billion
Annual sales 2010 : $ 67.8 billion

Pfizer Worldwide R&D

Pfizer faces challenges that will shape the future of biomedical R&D and the future of our industry. We are responding to these challenges with a vigorous strategy to strengthen our innovative core—focusing on the delivery of our pipeline, the development of important new capabilities, and the creation of the "R&D ecosystem" of the future, which will see the deepening of networks connecting scientists in industry, academia, and the public and not-forprofit sectors. We are essentially striving for a "step change" in R&D productivity. To do this, we are:

Concentrating on core research areas where we can deliver the greatest medical and commercial impact.
These areas include neuroscience, cardiometabolic diseases, oncology, inflammation/immunology and vaccines— all augmented by the advantaged technologies offered by our CovX and Rinat biotechnology units. Specialized units within Pfizer are focused on pain and sensory disorders, and on the advancement of biosimilars.

Establishing industry-leading models for external collaboration, opening the doors to the best science.
We joined with seven of New York City's top research universities and hospitals to expand Pfizer's Centers for Therapeutic Innovation (CTI) program. We have formed our first CTI partnership with the University of California, San Francisco, and will locate Pfizer scientists there to work alongside their academic counterparts.

Strengthening the fundamentals that drive differentiated innovation, to develop and deliver the medicines and vaccines that matter most.
We are strengthening our internal programs to drive disciplined decision-making and portfolio governance, and aligning our network of R&D sites more closely with major hubs for biomedical innovation. We are driving a bold R&D strategy with the goal of delivering the next generation of medicines and vaccines that will provide better treatments for many conditions and new hope for people with severe, unmet medical needs.

+1,000
More than 1,000 summaries of trial results have been posted to clinicalstudyresults.org

+1,300
clinical trials in 2010

Ref: Annual Review 2010 / Pipeline update of Feb 28, 2011

Vaccines Research & Development

1- History of Commitment in the field of Infectiology

Pfizer Vaccines (formally Wyeth vaccines and Lederle Vaccines) has a vaccine research and development history that spans over 100 years. Through the 20th century, Pfizer Vaccines developed and produced vaccines for diphtheria, tetanus and pertussis. It was one of the first manufacturers of the oral poliovirus vaccine and a primary supplier of smallpox vaccine to the smallpox eradication campaign. Pfizer scientists developed the bifurcated needle application device for smallpox vaccination, substantially increasing the speed and efficiency of smallpox vaccination during the campaign. Pfizer pioneered the conjugated polysaccharide vaccine technology and developed the first effective infant vaccines for Haemophilus influenzae type B, meningococcal serogroup B and pneumococcal infections

2- Product Portfolio in the area

- Prevnar (7-valent Pneumococcal Vaccine) for infants and children)
- Prevnar 13 (13-valent Pneumococcal Vaccine) for infants and children)

3- R&D Focus Portfolio and Prospective in this area

- Adolescent vaccine for prevention of meningooccal serogroup B invasive infection.
- Vaccine for prevention of systemic Staphylococcau aureus infection in nosocomial settings.
- Various vaccines for prevention of bacterial infections.
- Therapeutic vaccines for specific metabolic targets

Infectiology Research & Development

1- History of Commitment in the field of Infectiology

Pfizer was the first company to optimize the scale up and manufacturing of the first modern antibiotic—penicillin and by 1944, Pfizer became the world's leading producer of this medicine. Pfizer continued groundbreaking research and discoveries, introducing new tetracyclines and macrolides that have had a global impact on treating infectious diseases. For example, the azalide, Zithromax, is today used in a global program to eliminate blinding trachoma by 2020; the leading cause of infectious blindness worldwide. Today, Pfizer is a leading anti-infective company with anti-fungal and antibacterial agents to treat serious fungal and hospital acquired infection

2- Product Portfolio in the area

- Zyvox (linezolid), an oxazolidinone to treat serious gram positive infections including methicillin resistant Staphyloccus aureus.
- Vfend (voriconazole) and Eraxis (anidulafungin). Two anti-fungal agents used to treat serious fungal infections.
- Tygacil (tigecycline), a broad spectrum glycylcycline used to treat a range of gram positive and gram negative infections.

3- R&D Focus Portfolio and Prospective in this area

- Programs in discovery to address unmet medical need in Gram-negative infections
- Programs in discovery to treat sepsis syndrome
- Phase 2 development program for a new tuberculosis therapeutic

PFIZER
Emilio A. Emini, Ph.D.
Chief Scientific Officer, Vaccine Research

BIOGRAPHY

Training and academic background

1975-1980	Cornell University Graduate School of Medical Sciences, NY ; Microbiology (Major). Genetics (Minor). Biochemistry (Minor); Degree: Ph.D.
1980-1983	Postdoctoral Fellow, Department of Microbiology, State University of New York at Stony Brook
Present	Adjunct Professor of Pathology, University of Pennsylvania School of Medicine

Industry Background

2009-Present	Group Senior Vice President and Chief Scientific Officer, Vaccine Research, Pfizer Inc.
2005-2009	Executive Vice President, Vaccine Research and Development, Wyeth Pharmaceuticals
2004-2005	Senior Vice President, Vaccine Development, International AIDS Vaccine Initiative
2002-2004	Senior Vice President, Vaccine and Biologics Research, Merck Research Laboratories
1997-2002	Vice President, Vaccine and Biologics Research, Merck Research Laboratories
1994-1997	Executive Director, Department of Antiviral Research, Merck Research Laboratories
1992-1994	Senior Director, Virology, Merck Research Laboratories
1990-1992	Director, HIV Biology and Immunology, Merck Research Laboratories
1988-1990	Associate Director, Merck Research Laboratories
1986-1988	Research Fellow, Merck Research Laboratories
1983-1986	Senior Research Microbiologist, Merck Research Laboratories

Areas of research interest

- Vaccines for prevention of bacterial infections of chidren and adults
- Therapeutic vaccines for modulation ofspecific metabolic processes and targets
- Additional interest: Vaccines for prevention of viral infections in specific epidemiologic settings

CONTACTS

Emilio A. Emini, Ph.D.
Chief Scientific Officer, Vaccine Research
500 Arcola Road - E-Dock, D5221
Collegeville, PA 19426

Tél. : +1 484 865 6490
Email : emilio.emini@pfizer.com

PFIZER
Charles Knirsch, MD, MPH
Vice-President Infectious Diseases PA & Clinical Affairs

BIOGRAPHY

Training and academic background

Chuck completed medical school at McGill University in Montreal, Canada and a Masters in Public Health at Columbia University.
He completed residency and infectious disease training at Columbia Presbyterian Medical Center, post-doctoral fellowship training at The London School of Hygiene and Tropical Medicine and maintains an Adjunct position as Assistant Clinical Professor of Medicine at Columbia University, College of Physicians and Surgeons.

Industry Background

Charles Knirsch, MD, MPH, is Vice President, Clinical Affairs & ID Disease Area Lead, Specialty Care Medicines Development Group.
Prior to this position, Chuck was Therapeutic Head of Anti-Infectives in WW Medical.
Since joining Pfizer, Chuck has contributed to or led teams supporting the in-line anti-infective medicines. This has included the successful completion of several studies supporting sNDA's and a leadership role in re-organizing several Full Development Teams. Chuck has also been involved with forming partnerships that led to co-development studies with NIH, The Cystic Fibrosis Foundation, The Centers for Disease Control, UNICEF and the World Health Organization.

Areas of research interest

Chuck's academic publications include the epidemiology of drug resistant tuberculosis, medical informatics applications in hospital epidemiology, molecular diagnostic tests.
He is also co-author of the 4th and 5th Editions of the textbook Parasitic Diseases.

CONTACTS

Tél. : +1 212 733 4231
Email : charles.knirsch@pfizer.com

PFIZER
W. Richey Neuman, MD, MPH, FACP
Executive Director Vaccine Development

BIOGRAPHY

Training and academic background

Dr. Neuman obtained his medical degree from the Medical College of Pennsylvania, and completed his residency in general internal medicine at the Oregon Health Sciences University. Following residency, Dr. Neuman was a Robert Wood Johnson Clinical Scholar at Yale University School of Medicine, followed by additional training as an Ambulatory Care Fellow at Yale. Prior to medical school, Dr. Neuman received a master's of public health from the University of California, Berkeley, and worked as a toxicologist/epidemiologist at the State of California Department of Health.

Industry Background

W. Richey Neuman, MD, MPH, is Executive Director and the Disease Area Lead for Vaccines at Pfizer Pharmaceuticals. Dr. Neuman is in the leadership group in charge of Pfizer's global vaccine strategy, which includes activities pertaining to Prevenar 13 pediatric vaccine, the proposed adult indication for the 13-valent pneumococcal conjugate vaccine, and activities for pipeline vaccines including Meningitis B and S. Aureus.

Dr. Neuman joined Wyeth Pharmaceuticals (before it merged with Pfizer) in 2005. Prior to that, from 1997 to 2005, he was Assistant Professor of Clinical Medicine at the University of Pennsylvania School of Medicine, where he still teaches clinical epidemiology and in the internal medicine residents' clinic. While at the University of Pennsylvania, Dr. Neuman was Director of the General Medicine Fellowship Program and received numerous local, regional, and national teaching awards. During his career, Dr. Neuman has also served as Coordinator of the Veterans' Persian Gulf Illnesses Registry in Connecticut, and as the University City Hospitality Coalition Homeless Health Clinic Medical Director at the University of Pennsylvania.

Areas of research interest

Dr. Neuman is currently a reviewer for the Annals of Internal Medicine. He has also served on numerous national scientific committees and medical education subcommittees. Dr. Neuman has lectured internationally on topics in internal medicine, clinical epidemiology, and pneumococcal vaccinology, and vaccine practices.

He is also co-author of the 4th and 5th Editions of the textbook Parasitic Diseases.

CONTACTS

Tél. : +1 484 865 5116
Email : richey.neuman@pfizer.com

PFIZER
Ron Newbold
Vice President Strategic Research Partnerships

BIOGRAPHY

Training and academic background

2003 Columbia University – Columbia Business School: Masters Business Administration
1989-1991 Postdoctoral Fellow, Department of Chemistry,Harvard University
1985-1989 University of Rochester, Synthetic Organic Chemistry. Degrees: M.S., Ph.D

Industry Background

Dr. Ron Newbold is Head, Strategic Research Partnerships (SRP) within External R&D Innovation (ERDI).
Ron brings to Pfizer significant experience in external partnering in the Life Sciences field from his previous activities in large pharmaceutical as well as 3 venture-backed biotech companies.
After graduating from the University of Rochester and a postdoctoral fellowship in Organic Chemistry at Harvard University he joined Merck, where he founded and led their Strategic Research Initiatives licensing effort from 1996-2004.
Following 14 years with Merck, Ron joined Sentigen Biosciences; Celldex Therapeutics; and most recently Auspex Pharmaceuticals, where he served as Chief Business Officer, prior to joining Pfizer in 2010.

Areas of research interest

Ron and his group support established Worldwide Research & Development (WRD) academic alliances, such as with The Scripps Research Institute and QB3 at the University of California, and will strengthen Worldwide R&D's access to cutting edge science at academic institutions in the US and Europe targeting the needs of Pfizer's Research Units and Partner Lines.

In addition, Ron has responsibility for the activities of The Pfizer Incubator (TPI).

CONTACTS

Ron Newbold
Vice President Strategic Research Partnerships
External R&D Innovation
Worldwide Research & Development

Tél. : +1 212 733 7159
Email : ron.newbold@pfizer.com

PFIZER ANIMAL HEALTH

History of Commitment in the field of Animal Health Infectiology

The history of Pfizer is in large-scale production of penicillin. In Animal Health, Terramycin was the first broad-spectrum antibiotic used.
Since that time, Pfizer Animal Health (PAH) has developed a large range of both therapeutic and prevention tools against major farm as well as companion animals infectious diseases.
Infectiology is still the main topic of interest of the 800+ researchers involved in Animal Health R&D worldwide, with teams working in the areas of novel anti-infectives, immunomodulation, vaccines against a range of viral and bacterial diseases of economic interest, as well as adjuvants and biopharmaceuticals.

Product Portfolio in the area

- Antibiotics: beta-lactams(amoxicillin, ceftiofur, cefovecin), macrolides (tulathromycin), for use in various species
- Comprehensive vaccine range for cattle, swine, poultry, fish, dogs, cats and horses
- Novel peptide-based vaccines, e.g. Improvac and Bopriva

R&D Focus Portfolio and Prospective in this area

PFIZER'S ANIMAL HEALTH 2011 RESEARCH PIPELINE

- Treatment of major animal infectious diseases, such as cattle mastitis and metritis
- Vaccines against important bacterial (E.coli, Streptococcus, Staphylococcus, Salmonella), viral (BRSV, BLV) or protozoal (neoplasmosis, cryptosporidiosis) infections
- Adjuvants and immunomodulation
- Vector-based vaccines
- Diagnostics of infectious diseases
- Novel delivery technologies (needle-free, sustained-release)
- Biopharmaceuticals

Places of Worldwide Investigations

- Main R&D facilities in Kalamazoo, Michigan and Lincoln, Nebraska (USA)
- Other locations include: Australia, Spain, Belgium and India

PFIZER ANIMAL HEALTH
Christophe Derozier
Senior Director

BIOGRAPHY

Training and academic background

1988 Doctor in Veterinary Medicine (Ecole Nationale Veterinaire de Nantes - France)
2000 Master in Business Administration (Columbia Business School - USA)

Industry Background

1989-1991 Veterinary Office at the Botswana Vaccine Institute (Rhone Merieux)
1991-1993 Clinical Research Assistant (Pfizer Animal Health)
1993-1997 Technical Manager Africa Middle/East & Central/Eastern Europe (Pfizer Animal Health)
1997-2000 Associate Director Clinical Development Europe, Africa Middle East, Asia (Pfizer Animal Health)
2000-2003 Director Global Pharmacovigilance (Pfizer Animal Health)
2003-2009 Director Global Pharmacovigilance & Regulatory/Clinical for Asia & Latin America (Pfizer Animal Health)
2009-to date Senior Director Research & Development Asia Pacific (Pfizer Animal Health)

Areas of research interest

- Neglected diseases
- Zoonosis
- Drug and vaccine development

CONTACTS

Tél. : +61 3 8388 4333
Email : christophe.derozier@pfizer.com

PFIZER ANIMAL HEALTH
Isabelle Dieuzy-Labaye
Associate Director, Global Alliances, EurAfME

BIOGRAPHY

Training and academic background

1988 Doctor in Veterinary Medicine (Ecole Nationale Veterinaire de Nantes - France)
2000 Master in Business Administration (Columbia Business School - USA)

Industry Background

1990-1996 Pfizer Animal Health Headquarters, New York - USA (in various Strategic Marketing roles)
1997-2006 Pfizer Santé Animale France, Paris - France
(in Technical Director and Marketing Director positions)
2007-2009 self-employed in consulting role with start-up businesses and venture capital firms
2010-present Pfizer Animal Health, European Headquarters,
Paris - France: in charge of identifying and building research alliances in Europe,
Africa and Middle East in the field of ruminant health.

Areas of research interest

- Cattle reproductive disorders prevention, diagnosis and treatment
- Cattle mastitis prevention, diagnosis and treatment
- Other major ruminant diseases: BRD, parasitic diseases, lameness
- Protozoal diseases

CONTACTS

Tél. : +33 158074760
Email : isabelle.dieuzy-labaye@pfizer.com

PFIZER ANIMAL HEALTH
Paul Wood, Ph.D.
Executive Director, Global Discovery

BIOGRAPHY

Training and academic background

1982	Ph.D. - John Curtin School of Medical Research, Australian National University (Microbiology)
1976	B.Sc (Hons) – University of Western Australia (Microbiology)

Industry Background

2008 - present	Executive Director, Global Discovery, Pfizer Animal Health, Kalamazoo, MI USA
2004 - 2008	Senior Director, A/NZ Biologicals R&D, Pfizer Animal Health, Parkville, Australia
1997 - 2004	Vice President/Director, Global Research & Development, CSL Animal Health, Parkville, Australia
1985 - 1997	Program Manager, Effective Vaccine Development, CSIRO Division of Animal Health, Parkville, Australia
1993 - 2000	Deputy Director, Cooperative Research Center for Vaccine Technology

Areas of research interest

- Drug Development
- Vaccines
- Veterinary Immunology
- Tuberculosis

CONTACTS

Tél. : +269-833-4802
Email : paul.wood@pfizer.com

ROCHE

Company Size: Headquartered in Basel, Switzerland, Roche is a leader in research-focused healthcare with combined strengths in pharmaceuticals and diagnostics. Roche is the world's largest biotech company with truly differentiated medicines in oncology, virology, inflammation, metabolism and CNS. Roche is also the world leader in in-vitro diagnostics, tissue-based cancer diagnostics and a pioneer in diabetes management. Roche's personalized healthcare strategy aims at providing medicines and diagnostic tools that enable tangible improvements in the health, quality of life and survival of patients. In 2010, Roche had over 80,000 employees worldwide and invested over 9 billion Swiss francs ($8.7B US) in R&D. The Group posted sales of 47.5 billion Swiss francs ($45.6B US). Genentech, United States, is a wholly owned member of the Roche Group. Roche has a majority stake in Chugai Pharmaceutical, Japan.

Countries: Roche R&D is organized around three independent organizations: gRED (Genentech Research & Early Development), pRED (Pharma Research & Early Development) and Chugai R&D (Japan). The pRED organization is articulated around five DTAs (Discovery & Translational Areas): Oncology, Virology / Inflammation, Neuroscience and Metabolic and five global functions: Therapeutic Modalities, Clinical Development, Translational Research Sciences, Non-Clinical Safety and Informatics.

The Virology / Inflammation DTA is the second most important area in terms of R&D investments.

Strategic framework of pRED in Virology pRED Virology is performing research and early development for the discovery of new treatments for severe, life threatening infections and cure of chronic infections. Multiple candidates that interfere with the function of viral or host targets are currently evaluated as components of highly efficacious combination therapy to achieve clearance of Hepatitis C infection.

Roche has been a leader in the evaluation of nucleoside based combination therapy for Hepatitis C, and has first demonstrated the ability of nucleoside-based dual combination therapy to provide antiviral potency and barrier to resistance similar to Interferon-based triple therapy.

Current research is also aiming at improving clinical cure rates for persons infected with Hepatitis B virus, and investigating options to achieve clinical cure for persons with HIV infection.

Other areas of research include new approaches to improve efficacy and protection from hospitalization and death for persons with a high risk of severe respiratory infections.

History of Commitment in the field of VIROLOGY

The Virology disease area continues to be an important focus for discovery, research, and development. While science has made considerable progress in understanding viral pathogenesis and identifying new viral and host targets, there remains a high unmet medical need for treatment of life-threatening infectious diseases. The pRED Virology DTA is committed to identifying and developing unique, safe, and effective new therapies in several viral diseases, including:

- Hepatitis C Virus (HCV) Hepatitis B Virus (HBV)
- Human Papillomavirus (HPV)
- Influenza
- Respiratory Syncytial Virus (RSV)

Products already on the market have saved many from severe consequences of infections and have changed treatment paradigms in the areas of Hepatitis C, HIV and influenza:

Hepatitis C

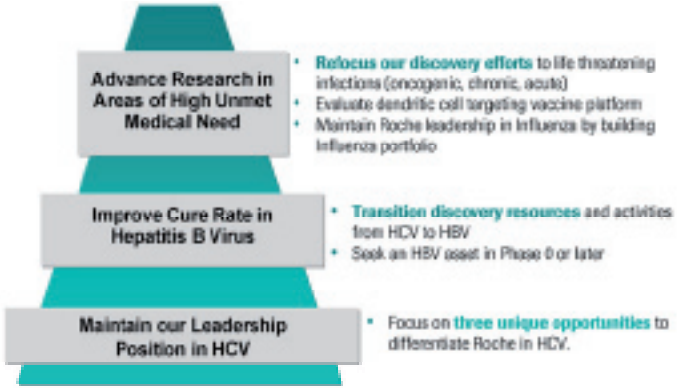
- Pegasys (peginterferon alfa-2a (40KD))
- Copegus (ribavirin)
- Roferon A (interferon alfa-2a)

PEGASYS has been studied in an unprecedented clinical trials programmes. To date, over 11,000 patients have been enrolled in Roche's comprehensive clinical development programme, in addition to the numerous local clinical studies involving over 40,000 patients. The combination of peginterferon alfa and ribavirin has since become the standard of care for the treatment of Hepatitis C infection, and will soon evolve into a basis for the addition of direct acting antivirals (DAA) into more efficacious Triple and Quad treatment regimens.
Roche currently has two direct-acting antiviral agents in Phase 2 development for hepatitis C: the nucleoside polymerase inhibitor **Mericitabine (RG7128)** (partnered with Pharmasset) and the protease inhibitor **Danoprevir (RG7227)**. Both of these oral agents are being investigated in combination with Pegasys and ribavirin, and in combination with each other in an interferon-free regimen. Additional DAA candidates are in Phase 0-1 development.
Nucleoside-based combination therapies are unique, as they promise high antiviral efficacy with a low risk of resistance selection and the potential for equipotency across virus genotypes.

Human Immunodeficiency Virus (HIV)
The development by Roche of the first HIV protease inhibitor (Invirase), which received regulatory approval in 1995, marked the beginning of the era of highly active antiretroviral therapy (HAART). Since then, combination therapy of HIV infection has been associated with a significant reduction in HIV-associated mortality.
Roche commercializes 3 antiretroviral medicinal products:

- Invirase (saquinavir) (First approved HIV protease inhibitor)
- Viracept (nelfinavir)
- Fuzeon (enfuvirtide) (First approved HIV entry inhibitor)

Vision in this area: our success as a DTA relies on realizing our vision in the three areas



Product Portfolio in the area

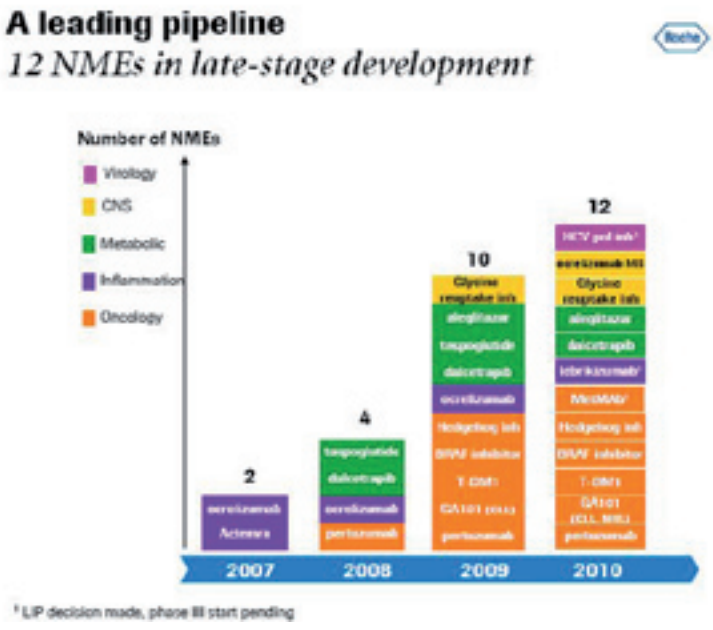
Products

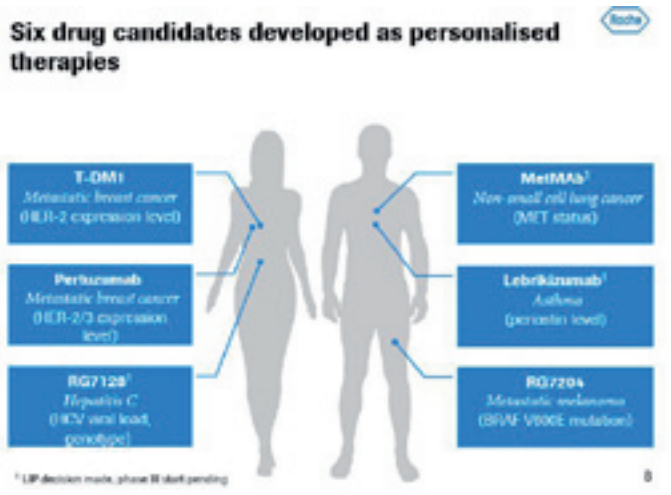
Compound/Generic name	Trade name/Temp.	Proj. type	Molecule type	Mechanism of action	Indication	Phase	Proj. filing date	Partner	Managed by
Virology									
HCV		NME	small molecule	Serine palmitoyl transferase inhibitor	HCV	1		Chugai	Chugai
RG7128		NME	small molecule	Nucleoside polymerase inhibito	HCV	2	2013	Pharmasset	Roche Group
RG7227 danoprevir		NME	small molecule	Protease Inhibitor	HCV	2	post 2013	InterMune	pRED
RG7432		NME	small molecule	Nucleoside polymerase inhibitor	HCV	1			pRED

R&D Focus Portfolio and Prospective in this area

	Phase 0-1	Phase 2	Phase 3	Marketed
HCV	RG7432 RG7109 DAA-1 DAA-2 DAA-3 mAb	Mericitabine Danoprevir DAA combo		• Pegasys
HBV				• Pegasys
HPV		RG3484		
CMV				• Valcyte
HIV	RG1206 BFFI			• Fuzeon • Invirase • Viracept
Influenza A+B				• Tamiflu
Dengue	Balapiravir			

Phase 0 : Preclinical safety studies are performed and drug is prepared to enter human studies
Phase 1 : Safety studies are initiated and the drug first enters humans
Phase 2 : Studies efficacy in humans with a clinically significant end-point
Phase 3 : Larger clinical trials usually involving a comparison against a standard comparator in preparation for the registration of the compound and approval by regulatory authorities

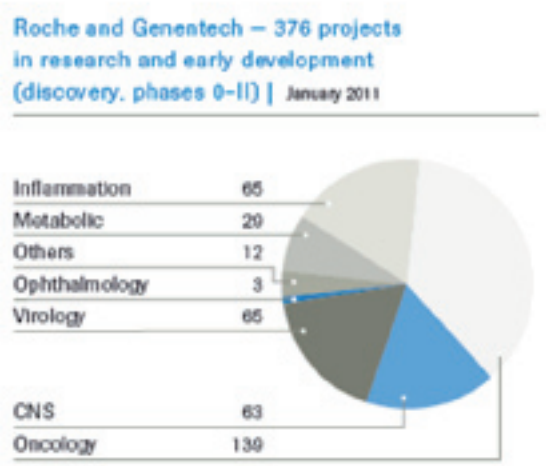


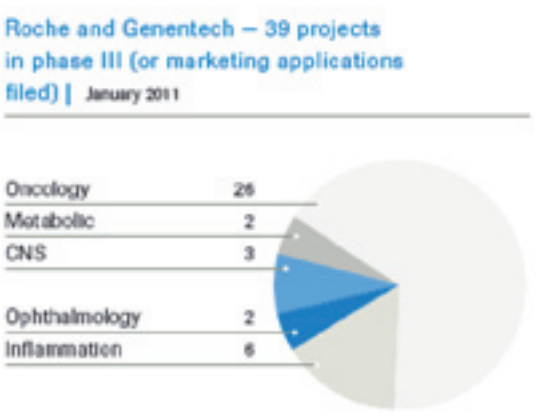


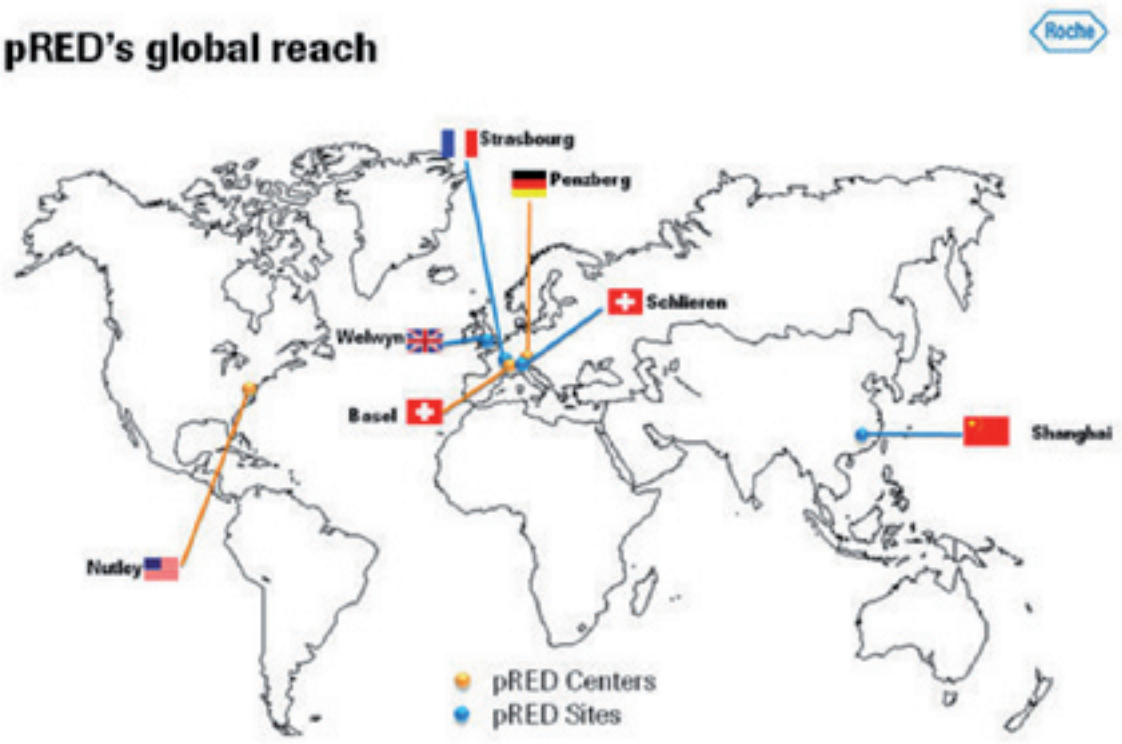
Places of Worldwide Investigations

Genentech Research and Early Development (gRED) is located in South San Francisco (U.S.) and focuses on Oncology, Immunology, Neuroscience, Infectious and Metabolic areas.
Pharma Research and Early Development (pRED) is located in Nutley (USA), Basel (Switzerland), Penzberg (Germany), Welwyn (UK), and Shangai (China), and focuses on Oncology, Inflammation, Neuroscience, Virology and Metabolic areas. pRED is also committed to harnessing innovation and creating value through numerous partnerships, academic alliances and scientific collaborations.

Research and development







ROCHE

Jacques Banchereau, Ph.D.

Sr. Vice President, Discovery and Translational Areas, Chief Scientific Officer

BIOGRAPHY

Training and academic background

1975	Graduated as Pharmacist (University of Angers, France)
1975-1980	4 year internship/residency, with certification in pharmacology, clinical biochemistry, clinical microbiology, clinical immunology, and clinical parasitology. (University of Paris, France)
1976-1977	Research Fellow under direction of Pr. Nahas and Pr. Hembree. (College of Physicians and Surgeon/Columbia University, New York)
1980	PhD in Biochemistry. (University of Paris, France)
1993	« Habilitation à diriger des recherches ». (University Claude Bernard-Lyon, France)
1993-1994	Visiting Professor, Department of Microbiology, UT Southwestern Medical Center (Pr. J.D. Capra's laboratory), Dallas, Texas.
1996-2010	Adjunct Professor, Department of Microbiology, UT Southwestern Medical Center, Dallas, Texas.
1996-present	Adjunct Professor, Department of Biomedical Studies, Baylor University, Waco, Texas.
2008-2010	Professor, Department of Gene and Cell Biology; Department of Medicine (Clinical Immunology Division), Immunology Institute; Experimental Therapeutics Institute, Mont Sinai School of Medicine, New York.
2009-present	Adjunct Professor, Department of Biomedical Sciences, Baylor College of Dentistry, Dallas,Texas.
2010-present	Adjunct Professor (appointment pending), Department of Gene and Cell Biology, Mont Sinai School of Medicine, New York School.

Industry Background

1981	Scientist – UNICET Laboratory for Immunological Research, Dardilly, France (formerly Schering-Plough France)
1984-1996	Director – of Schering-Plough Laboratory for Immunological Research, Dardilly, France
1996-Present	Director – Baylor Institute for Immunology Research, Dallas, Texas
1998-Present	Member, Cancer Immunobiology Center, (Dr. Ellen S. Vitetta, Director) UT Southwestern Medical Center, Dallas, Texas
2008-2010	Director, BIIR/INSERM/ANRS Unit 899 – Center for Human Vaccines, Dallas, Texas
2010-Present	Sr. Vice President, DTA Head Inflammation & Virology and Chief Scientific Officer, Hoffmann-La Roche Inc., Nutley, New Jersey

Areas of research interest

• ***Honors/Awards/Patents***

1980	Gold Medal of Paris Hospitals. Internship / Residency Program
2005	Person of the Year. French-American Chamber of Commerce, Dallas / Forth Worth Chapter
2009	Award in Human Immunology Research. American Association of Immunologists-Dana Foundation

• ***Publications***

2008	Fifth most cited scientist in Immunology (01/01/98-10/31/08)
2006&2007	Fourth most cited scientist in Immunology
2005	Third most cited scientist in Immunology

• ***Invited Lectures/Presentations***

SYMPOSIUM ON IMMUNOLOGY: VACCINES, T CELLS & ANTIBODIES
Baylor – M.D. Anderson Cancer Center Joint Symposium
Houston, TX / January 29, 2010
GLOBAL HIV VACCINE ENTERPRISE: COLLOQUIUM ON SYSTEMS BIOLOGY & HIV VACCINE DEVELOPMENT

Peachtree City, GA / February 8-10, 2010
KEYSTONE SYMPOSIA: TOLERANCE & AUTOIMMUNITY
Taos, NM / February 21-26, 2010
MEXICAN IMMUNOLOGY 2010
Cancun, Mexico / March 8-12, 2010
FIRST NORTH AMERICAN PRIMARY IMMUNE DEFICIENCY NATIONAL CONFERENCE
Hosted by Clinical Immunology Society
Philadelphia, PA / May 20-30, 2010
FOCIS 2010
Boston, MA / June 24-27, 2010
SAN RAFFAELE SCIENTIFIC INSTITUTE ADVISORY BOARD
Milan, Italy / July 8-9, 2010
14TH INTERNATIONAL CONGRESS OF IMMUNOLOGY
Kobe, Japan / August 22-27, 2010
SATELLITE SYMPOSIUM / 14TH INTERNATIONAL CONGRESS OF IMMUNOLOGY
Kanazawa, Japan / August 28-29, 2010
MOLECULAR BASIS OF APPLIED BIOLOGICAL THERAPEUTICS
Stockholm, Sweden / September 12-14, 2010
LABORATORY TH THE CLINIC: DIFFERENCES BETWEEN IMMUNITY & INFLAMMATION IN MICE & MEN
REASONS FOR TRANSLATIONAL FAILURES?
Trinity College Lecture Series
London, UK / September 20-23, 2010
DC2010: FORUM ON VACCINE SCIENCE
Lugano, Switzerland / September 26-30, 2010
UNIVERSITY OF MICHIGAN CANCER CENTER GRAND ROUNDS
Ann Arbor, MI / October 10-11, 2010

Biography of Jacques Banchereau – DTA Head of Inflammation and Virology, and Chief Scientific Officer at Nutley

Jacques Banchereau, Ph.D., is the Discovery and Translational Area Head for the Inflammation and Virology. He joined Roche in 2010 from the Baylor Institute for Immunology Research in Dallas, Texas, where he has been Founder and Director since 1996. Jacques is credited as the architect behind the Institute's growth over the last 14 years. After graduating as a pharmacist from the University of Angers, France, Jacques went on to the University of Paris, earning certification in pharmacology and immunology, as well as in clinical biochemistry, microbiology and parasitology, before completing a Ph.D. in biochemistry in 1980.

Jacques joined Schering Plough's research unit in Dardilly, France in 1981, and built a highly productive career there over 15 years. His lab was one of the first to make human monoclonal antibodies, and generate dendritic cells in vitro.

With 30 years experience in discovery and translational science, both in big pharma and in an independent institute, Jacques is recognized as a world-class leader in human immunology research. He is inventor or co-inventor on numerous patents, and a widely published author. After building careers at two first class institutions, Jacques says he looks forward to an encore at Roche.

A native of France, Jacques is based at the Roche R&D site in Nutley.

CONTACTS

Jacques Banchereau, Ph.D.
Sr. Vice President, Discovery and Translational Areas - Inflammation & Virology (Discovery and Translational Medicine) and Chief Scientific Officer
Pharmaceutical Research and Early Development
Hoffmann-La Roche Inc.
340 Kingsland Street
Nutley, New Jersey 07110

Tél. : +1 973 235 2938
Email : jacques.banchereau@roche.com

ROCHE
Stephan Chalon
Head – Institute for Research & Translational Medicine

BIOGRAPHY

Training and academic background

1999 PhD, Pharmacology, Paris XI Univ., France
1998 Postdoctoral Fellowship – Clinical Pharmacology, Stanford Univ., USA
1995 Board Certification in Internal Medicine, Paris VI Univ., France
1993 MD, Paris VI Univ., France

Industry Background

2011 Roche Pharma – Head of Research & Translational Medicine Institute, Paris, France
2006-2007 Wyeth Research/ Pfizer Global R&D - Assistant Vice President European Early Development, Paris, France
2003-2006 Lilly Research Laboratories – Medical Advisor, Indianapolis, USA
1998-2003 Lilly Research Laboratories – Senior Clinical Pharmacologist, Mont-Saint-Guibert, Belgium

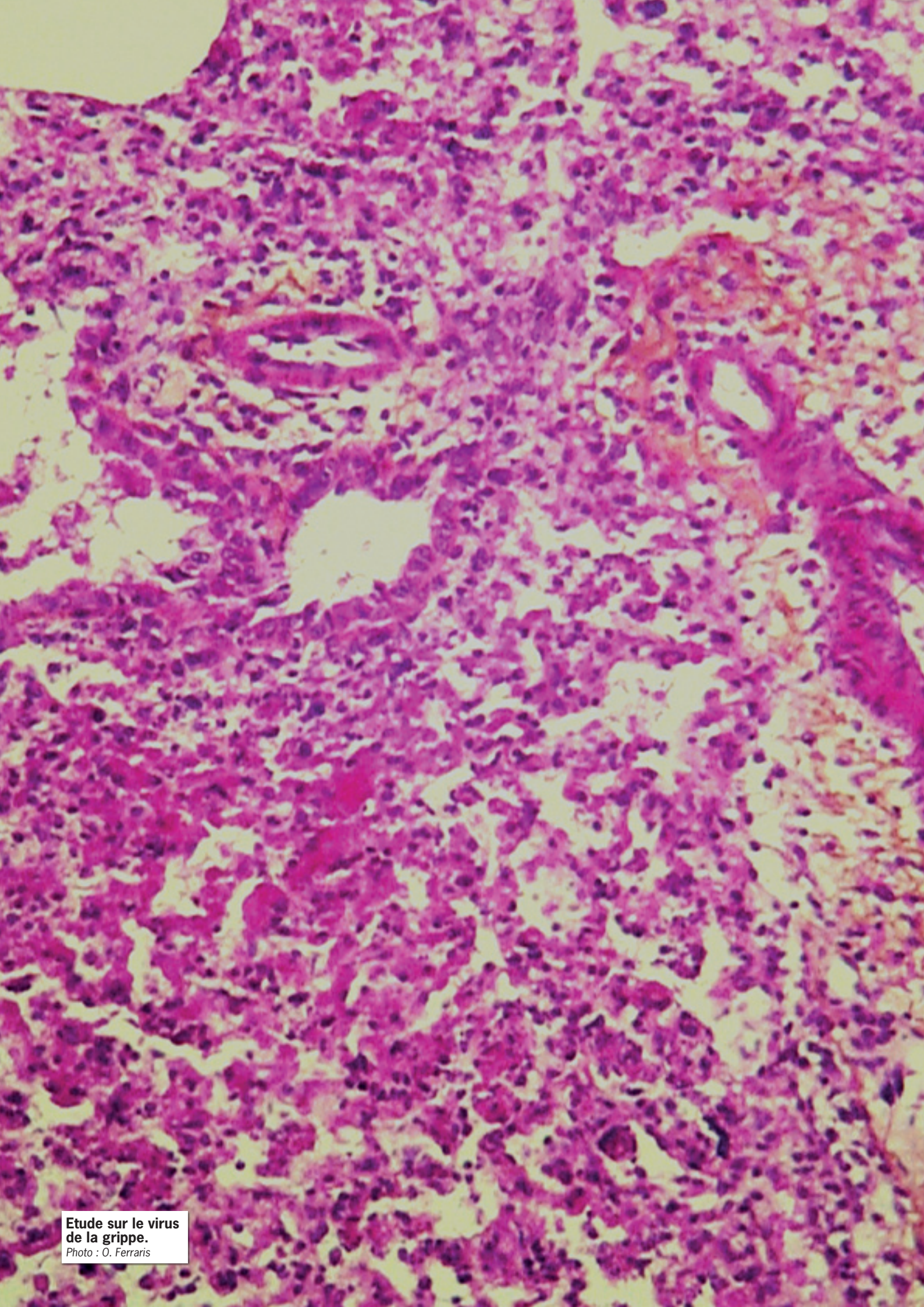
Areas of research interest

• Stephan and his group based in Paris support Global Academic Alliances within Roche Pharma Research & Early Development in France. As such his interests cover the 5 main disease areas of the company (CNS, inflammation, metabolism, oncology and virology) as well as translational research and non-clinical safety (modeling and simulation, bioinformatics, predictive toxicology).

CONTACTS

Stephan Chalon
Head – Institute for Research & Translational Medicine
Global Academic Alliances / Roche Pharma Research & Early Development
Paris, France

Tél. : +33 (0)6 85 48 62 59
Email : stephan.chalon@roche.com



Etude sur le virus de la grippe.
Photo : O. Ferraris

SANOFI

Company Size : Sanofi is a global healthcare leader focused on the patient's needs. It offers a range of essential healthcare assets, including a broad-based product portfolio, prescription medicines, generics, consumer healthcare, animal health and a worldwide presence.
R&D Staff : 16,000 employees
Annual sales 2010 : € 30.384M

Sanofi legacy companies (Sanofi, Aventis, Synthélabo, Hoechst Marion Roussel and Rhône-Poulenc) bring to the Group more than a century of experience in the pharmaceutical industry together with a long history of developing antibacterial and antiparasitic drugs. The development of antimalarial drugs has been ongoing since the 1930's, and led to the creation of Access to Medicines department in 2005 by merging initiatives such as Impact Malaria or the partnership with the WHO on Human African Trypanosomiasis. Their goal is to improve access to medicines for all patients in emerging and developing countries.
Sanofi is committed to promote, via its two entities (Infectious Diseases Strategic Unit and Access To Medicines), a global disease management through prevention, diagnosis and treatment. It is also involved in partnerships dedicated to the development of innovative approaches and educational tools.

Product Portfolio in the Area

• Quinimax ® Nivaquine® Paluject ® Paluther ® Flavoquine® Arsumax® Arsucam®, Coarsucam ® or ArteSunate-Amodiaquine Winthrop ®, Colimycine®, Fosfocine®, Cefrom®, Azactam® Targocid®, Pyostacine®, Tavanic®, Rulid®, Rovamycine®, Ketek®, Orelox®, Oroken®, Extencilline®, Oflocet®, Péflacine®, Pipram®, Flagyl®, Rodogyl/Birodogyl®, Thiophénicol®, Disulone®, Rifadine®, Pirilène®, Rifinah®, Rifater®

R&D Focus Portfolio and Prospective in this Area

R&D portfolio: compounds in development

- Hospital bacterial infections: SAR279356 (mAb; phase I, treatment and prevention of serious infections) Pseudomonas aeruginosa antibody fragment, prevention of ventilator-associated pneumonia
- Malaria: SSR97193 (ferroquine FDC, phase II), SAR97276 (albitiazolium bromide, phase II)
- Tuberculosis: Cyclopeptide derivative (preclinical, treatment of active tuberculosis), Rifapentine (latent and active TB)
- Human African Trypanosomiasis: Fexinidazole (in partnership with DNDi)

In addition, there are multiple projects in discovery phase for the prevention and treatment of severe infections, tuberculosis and parasitic diseases.

Partnerships in infectiology

Infectious Diseases Therapeutic Strategic Unit

There is now a clear need for a new not-only-drug approach to the treatment and prevention of infectious diseases.

The Infectious Diseases Therapeutic Strategic Unit (ID TSU) was set up to focus on:

■ providing global healthcare solutions to hospitals and nursing homes for the treatment and prevention of Multi Drug Resistant diseases (MDR), including diagnosis, vaccines and antiseptics,

■ improving therapies for the Neglected Diseases (ND) of developing countries in order to fight resistance and strengthen adherence to treatment, in close alliance with Access to Medicines.

In addition to these internal approaches, an External Opportunities group of 5 people provides its scouting expertise to capture, assess and integrate external early and late stage innovations whenever possible.

Discovery for treatment of both MDR and ND involves risk and resource sharing via external collaborations and partnerships.

Access to Medicines : A global and innovative approach to treatment and partnership involving various players with complementary skills.

Access to Medicines has developed an operating procedure aiming at a global approach to disease and incorporating their partners' complementary skills. This procedure is based on:

■ a differentiated pricing policy for our medicines, which extends to 'no profit-no loss' prices,

■ training and information programmes adapted to all professionals in the healthcare chain,

■ the development of drugs suited to the patient's needs through constant research,

■ the production of high-quality medicines thanks to our industrial expertise.

Access to Medicines has designed tools providing the most complete information on prevention, diagnosis and treatment in a form adapted to each user's role. The most relevant tools are made available to governments and other key players in the field such as Non-Governmental Organizations to fulfill their specific educational objectives.

Access to Medicines long-term commitment is to gather all their fields of expertise, thus leading to a sustainable and global model to fight disease on all fronts, from prevention to treatment. This approach requires effective partnership involving various players with Access to Medicines' complementary skills.

Places of Worldwide Investigations

• R&D : Frankfurt, Germany; Bridgewater, USA; Toulouse & Chilly-Mazarin, France
• R&D : Access to Medicines : Gentilly, France

SANOFI
Robert Sebbag, MD.
Vice President Access to Medicines Sanofi

BIOGRAPHY

Dr Robert Sebbag is currently Vice President Access to Medicines at Sanofi. In his role, Dr Sebbag participates in the company's access to medicines strategy development for the Southern Hemisphere.
Prior to joining Sanofi, Dr. Sebbag worked in Brussels for the European pharmaceutical industry association (EFPIA) on creating a communications platform for the pharmaceutical companies operating in Europe. In his prior role, he was Senior Vice President of Communications for the vaccine company, Aventis Pasteur (today known as Sanofi Pasteur). In addition to his activities within the pharmaceutical industry, Dr. Sebbag is also teaching public health courses within the Paris hospital system, focusing on tropical parasitic diseases. Dr. Sebbag is active within the French Red Cross and has participated in numerous health missions in the Southern Hemisphere. Dr. Sebbag is a Doctor in Medicine with specialty in tropical parasitic diseases and training in psychiatry.

CONTACTS

Robert SEBBAG, MD,
Vice President Access to Medicines
Sanofi
82, avenue Raspail
94255 Gentilly cedex France

Tél. : +33 (0)1 41 24 57 78
Email : robert.sebbag@sanofi-aventis.com

Admin. assistant : Marie-Christine Greselin
Tel. : +33 (0)1 41 24 57 89
Email : marie-christine.greselin@sanofi-aventis.com

SANOFI
Laurent Fraisse, Ph.D.
Vice President Strategic Research Therapeutic Strategic Unit for Infectious Disease (TSU–ID)

BIOGRAPHY

Training and academic background

1993 PhD: Conception of reactive oxygen species scavengers as therapeutic drugs. Option Biotechnologies de l'Institut National Polytechnique de Toulouse.
1986 Diplôme en biochimie appliquée à l'Institut National Agronomique
1985 Diplôme d'ingénieur agronome, l'Ecole Nationale Supérieur Agronomique de Rennes

Industry Background

2010-present Associate Vice president, Discovery research, Therapeutic Strategic Unit for Infectious Diseases (TSU–ID), Research & Development, Sanofi, Toulouse, France
2008-2010 Deputy Head of Exploratory and Internal medicine international department (EIM), head of the Toulouse platform, Leader of the infectious diseases research projects R & D, Sanofi,Toulouse, France
1999-2008 Biology group leader
Since 01/2005 Leader of the Infectious diseases research projects
Since 02/2002 In charge of antimalarial research. R & D, Sanofi, Toulouse, France
1995-1999 Biology group leader: Applied biochemistry for healthcare (Sanofi) and fine chemistry Elf business units. Lacq Research Center, Elf Aquitaine, France
1988-1995 Project leader: Applied biochemistry projects for healthcare (Sanofi) and fine chemistry Elf business units. Lacq Research Center, Elf Aquitaine, France

Areas of research interest

Infectious diseases: parasitology, microbiology; host response
Identification of candidates for pharmaceutical development

CONTACTS

Laurent Fraisse, Ph.D.
Associate Vice president, Discovery research,
Therapeutic Strategic Unit for Infectious Diseases (TSU–ID)
Sanofi
195, Route d'Espagne
31036 Toulouse France

Tél. : +33 5 34 63 24 42
Email : laurent.fraisse@sanofi-aventis.com

SANOFI
François Bompart, MD.
Deputy Head & Medical Director, Access to Medicines

BIOGRAPHY

Training and academic background

1984 Medical Doctor, Angers Medical School (France) in 1984
1984-1986 Clinical Pharmacology: Research Fellow, University College London, UK
1986-1989 Clinical Pharmacologist, Institut de Recherche Thérapeutique, Hôpital Cochin, Paris, France

Industry Background

1989-1990 Director of Gastro-Enterology and Vaccines Department, Medical Department, Laboratoires Smith Kline & French, Paris, France
1991-1998 Associate Director, then Director Anti-Infectives Clinical Research, Rhône-Poulenc Rorer, Collegeville, PA, USA (5 years) and Antony, France (2 years)
1998-2001 Vice-President, Medical, Aventis Pasteur International, Lyon, France
2001-2005 Vice President Global Medical Affairs, Sanofi Pasteur Lyon, France
Since 2006 Deputy Head & Medical Director, Access to Medicines, Sanofi Aventis, Paris.
This department brings together the Sanofi Aventis Group's areas of expertise to address the challenge of access to healthcare in developing and emerging countries for specific diseases: malaria, tuberculosis, sleeping sickness, leishmaniases, mental illnesses, and epilepsy.

Areas of research interest

- Infectious diseases
- Ethics of clinical research

CONTACTS

François Bompart, MD.
Deputy Head & Medical Director, Access to Medicines,
Sanofi
82, avenue Raspail
94255 Gentilly cedex France

Tél. : +33141245345
Email : francois.bompart@sanofi-aventis.com

SANOFI
Catherine Janus, MD.
Medical Director, Anti-infectives

BIOGRAPHY

Training and academic background
Medical Doctor, Strasbourg Medical School (France)

Industry Background
1986-1987 Anti-infectives medical leader, Medical Department, Takeda, Paris, France
1992-1994 CNS medical leader, Medical Department, Rhône-Poulenc Rorer, Paris, France
1995-1997 Anti-infectives medical leader, Medical Department, Rhône-Poulenc Rorer, Paris, France
1998-2005 Anti-infectives medical director, International area, Rhône-Poulenc Rorer and Aventis, Antony, France
Since 2005 Anti-infectives medical director, Sanofi, Paris, France

Areas of research interest
• Infectious diseases

CONTACTS

Catherine Janus, MD.
Medical Director, Anti-infectives,
Sanofi France
9, boulevard Romain Rolland
75014 Paris France

Tél. : +33157632877
Email : catherine.janus@sanofi-aventis.com

SANOFI PASTEUR

Company Size : 13,000 Employees
Pharmaceutical Industry
R&D Staf : More than 15% of total staff
Annual sales 2010 : € 3,808 million

History of Commitment in the field of INFECTIOLOGY

- A long history in the world of fights against infectious diseases: with the Merieux Laboratories in France in 1897 and the Connaught Laboratories in USA in 1914
- Broadest vaccine portfolio in the industry
- More than 1 billion doses/year
- More than 500 million people vaccinated/year
- Leadership position in influenza, pediatrics, meningitis and boosters
- Major recent launches: Pentacel® (US), Pentaxim® (int'l), Intanza/IDFlu® (EU and Int'l), Fluzone® High Dose IM (US)
- Vaccines' candidates in registration or recently licensed: Menactra® InfantToddler (US), Fluzone ID (US), IMOJEV™ (Int'l), Pediacel® (EU)
- Promising pipeline: Dengue, C.difficile, Hexaxim, etc…
- Significant on-going investments to expand production capacity
- At the forefront of the immunization community (WHO, UNICEF, PAHO, CDC, GAVI Alliance, AAP, etc.)

Partening for global health : 60% of our pipeline and virtually 100 percent of our pre-clinical projects are based on partnerships with the biotechnology community as well as with leading

Product Portfolio in the Area

Viral diseases

Bacterial diseases

and against one eradicated disease

R&D Focus Portfolio and Prospective in this area

15 vaccines in development (1)

PHASE I	PHASE II	PHASE III	Submitted
Streptococcus pneumonia Meningitis & pneumonia vaccine **Tuberculosis** Recombinant subunit vaccine **Rotavirus** Live Attenuated Tetravalent Rotavirus oral vaccine **Pseudomonas aeruginosa** Antibody fragment product Prevention of ventilator-associated pneumonia	**Rabies** mAb post exposure prophylaxis **Meningitis A,C,Y,W conj.** 2nd generation Meningococcal conjugate Infant vaccine **Rabies VRVg** Purified vero rabies vaccine **DTP-HepB-Polio-Hib vaccine** **ACAM C. diff** Clostridium difficile Toxoid vaccine	**Hexaxim™** DTP-HepB-Polio-Hib vaccine **Quadracel®** DTP IPV vaccine 4-6 years of age **Dengue** Mild-to-severe dengue fever vaccine **Fluzone® QIV** Quadrivalent inactivated influenza vaccine	**Menactra®** Meningococcal conjugate vaccine for Infants/Toddlers at 9-12 months **Fluzone® ID** Seasonal influenza vaccine. intradermal micro-injection U.S.

Places of Worldwide Investigations

- 7 R&D(1) sites
  - France (Marcy l'Etoile)
  - US (Swiftwater , Cambridge)
  - Canada (Toronto)
  - India (Hyderabad)
  - China (Beijing)
  - Recent acquisition of VaxDesign in USA
- 13 production/R&D sites
  - France (Marcy l'Etoile and Val de Reuil)
  - US (Swiftwater , Canton and Rockville)
  - Canada (Toronto)
  - Argentina (Pilar)
  - China (Shenzhen)
  - India (Hyderabad)
  - Thailand (Chachoengsao)

  including 3 new facilities under construction :

  Mexico (Ocoyoacac), France (Neuville) and China (Shenzhen)
- A worldwide presence
- A joint venture with Merck & Co. Inc. in Europe, SPMSD

(1) As of Feb 2011, from phase I to "submitted"
(2) FTEs as of Feb 2011 – Vaccines activities

SANOFI PASTEUR
Michel DeWilde
Senior Vice President, Research & Development

BIOGRAPHY

Training and academic background

1976 PhD Biochemistry, Free University of Brussels
Genetics and biochemistry of Bacterial Ribosomes

1977 University of Wisconsin – Molecular Biology of drug resistant bacterial plasmids
Initial experience with recombinant DNA

1977 University of Ghent-Belgium – Molecular Biology of plant – pathogen interactions

Industry Background

1999-present Sanofi pasteur, Inc. – Deputy Executive Vice President, Research & Development to Senior Vice President, Research & Development
Current global responsibility includes all aspects of Research and Development from Discovery to Licensure, including Intellectual Property and support functions. Around 1500 headcount, budget above 500 million euros. Sites: Marcy L'Etoile, France; Toronto, Canada; Swiftwater, PA, US; Cambridge, MA, US; Orlando, Florida, US; Beijing, China; and Shantha Biotechnics site, Hyderabad, India. Several new products have been licensed by the FDA and globally under his leadership

1977-1999 SmithKline Beecham Biologicals (now Glaxosmithkline Biologicals) – From Research Scientist to Vice President, Research and Development. Instrumental in discovery and development of 1st recombinant hep B vaccine and Malaria vaccine currently in phase 3

Areas of research interest

- Vaccinology at large
- From antigen discovery to Registration and public health issues
- New Life Science technologies

CONTACTS

Michel DeWilde
Senior Vice President, Research & Development
Discovery Drive
Swiftwater, PA 18370 USA

Tél. : +1-570-957-4204
Fax : +1-570-957-5690

SANOFI PASTEUR
Jeffrey Almond
Vice President, Discovery Research & External R&D

BIOGRAPHY

Training and academic background

1973 University of Leeds, BSc Microbiology & Biochemistry
1977 University of Cambridge, Pathology, PhD Virology

Industry Background

1977-1979 Sandoz Forshungssinstitut Vienna, Austria. Influenza Vaccine Development
1979-1999 Universities of Leicester & Reading, various positions held in Academia including Professor of Microbiology and Head of School of Animal and Microbial Sciences
1989-1990 CIBA-GEIGY, Basel CH, Visiting Research Fellow at the Dept of Oncology & Virology
1999-Present Sanofi Pasteur Marcy l'Etoile, Site Vice President of R&D (France) to Vice President of Discovery Research, as well as Head of External R&D Sites : Marcy l'Etoile France & Cambridge USA

Fellow of the UK Academy of Medical Sciences
Fellow of the American Academy of Microbiology
Member of MRC Council UK.
Previous Chairman of the Virology Division of the International Union of Microbiological Sciences.

Areas of research interest

- Vaccinology
- Microbiology, virology
- Molecular biology
- Genetics and evolution
- Biotechnology

CONTACTS

Jeffrey Almond
Vice President, Discovery Research
& External R&D
1541 avenue Marcel Mérieux
F-69280 Marcy l'Etoile

Tél. : +33 4 37 37 94 53
Fax : + 33 4 37 37 39 76

SANOFI PASTEUR
Emanuelle Trannoy
Associate Vice-President Technology and European Initiatives

BIOGRAPHY

Training and academic background

1989 PhD in Immunology, University Paris 7
1983 DEA in Immunology, Institut Pasteur –University Paris 7

Industry Background

1992-present Currently in charge of the Technology portfolio and the European public partnership for sanofi pasteur (which includes the "investissement d'avenir").
Eighteen years previous experience in Vaccine Research and Development with the company. Started as a senior Immunologist working on several vaccine candidates (Flu, Zoster, Dengue) and on new technologies (formulations, adjuvants, new delivery systems for vaccines, new immunological read-outs, etc..). Was appointed Head of Immunology platform of the Research Department in 1997, Head of Research France in 2002, Head of Global Research in 2007 managing a team of two hundred people located in North America and France

1983-1992 Research and training at the University Paris 7 followed by 5 years as a Research scientist in Biotech and Industry including 3 years in North America

Areas of research interest

- Vaccinology
- New life science Technologies
- Immunology

CONTACTS

Tél. : +33(0)4 37 37 35 35 / +33(0)4 37 66 80 80
Email : Emanuelle.trannoy@sanofipasteur.com

TRANSGENE

Company Size : 289
Annual sales 2010 : 0
R&D Staff : 117

History of Commitment in the field of INFECTIOLOGY
Promises of therapeutic vaccines in the field of chronic infectious diseases

Product Portfolio in the Area
- TG4001 : Therapeutic vaccine for CIN2/3 lesions of women infected with HPV16 (Phase II)
- TG4040 : Therapeutic vaccine for patients chronically infected with HCV genotype 1b (Phase II)

R&D Focus Portfolio and Prospective in this Area
- Focus on therapeutic vaccines for patients chronically infected with HBV and/or relapsing TB-infected patients
- Prospective : cost effective new treatments & high benefit/risk ratio

Places of Worldwide Investigations
- EU, US, Canada, China

TRANSGENE
Philippe Archinard
Chairman & C.E.O

BIOGRAPHY

Training and academic background

1982	Chemical Engineering Degree – Montpellier University
1985	PhD in Biochemistry – Lyon University
1994	PMD Program – Harvard Business School

Industry Background

2004-present	Chairman & CEO - Transgene SA - France
2000-2004	CEO - Innogenetics - Belgium
1985-2000	Various positions, including CEO of the US Operations bioMérieux - France & United States

Areas of research interest

- Cancers
- Infectious Diseases

CONTACTS

Tél. : +33 (0)3 88 27 91 01
Email : archinard@transgene.fr

TRANSGENE
Geneviève Inchauspe, PhD
Senior Vice President, Research & Development

BIOGRAPHY

Training and academic background

1984	PhD Thesis: Analytical methods applied to Biochemistry, Laboratory of Pr. Asselineau, Department of Microbiology, Toulouse University. Identification and biochemical characterization of novel aminoglycoside antibiotics
1995	Habilitation à Diriger des Recherches : University of Lyon
1985-1988	Post-Doctoral visiting fellow, Laboratory of Dr. Stephen E. Straus, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda MD. Gene regulation of herpes viruses (varicella zoster virus)
1988-1992	Assistant Investigator, Laboratory of Dr. A. M. Prince, The Lindsley.F Kimball Research Institute of The New York Blood Center, New York NY Hepatitis C virus molecular epidemiology
1992-1993	Assistant Member, Laboratory of Dr. A. M. Prince, The Lindsley.F Kimball Research Institute of The New York Blood Center, New York NY Hepatitis C virus molecular evolution and immunogenicity studies
1994-07/1999	Chargé de Recherche (CR1) and Group Leader, INSERM U 271 Hepatitis C vaccine development and host-virus immunological interplay
01/ 2000-07/2001	Director of Research (DR2) and Team Leader, INSERM U 271, Lyon
07/2001-12/2003	Team Leader at UMR 2142, CNRS-BioMérieux
01/2004-06/2005	Team Leader at FRE 2736, CNRS-BioMérieux and Project Leader for Transgene (since sept 04)

Industry Background

2005-2011	Head of Infectious Diseases Department, Transgene SA
2005-2011	Transversal Responsabilities within the Mérieux Institute Holding Company (Hepatitis Viruses, Tuberculosis, Public Health Committee)

Areas of research interest

- Chronic infectious diseases
- Vaccinoloy
- Immunology
- Virology

CONTACTS

Tél. : 06.82.07.63.04
Email : inchauspe@transgene.fr

TRANSGENE

Jean-Yves Bonnefoy

VP Research & Development

BIOGRAPHY

Training and academic background

Senior Management Programme, London Business School
Staff and Project Management Courses Principled negotiations

1987 Doctorate thesis speciality : Immunology

1985 Thesis in Biochemistry « 3ème cycle »

Industry Background

Since 2011 President Alsace BioValley, competitiveness cluster

Since 2005 Vice-President, Research & Development TRANSGENE S.A.
Therapeutic axis: cancer & infectious diseases
Staff management (115 people located in Strasbourg, Lyon, France, Washington, Shanghai)
• Research • Medical Affairs • Regulatory Affairs • External projects • QA R&D
• Toxicology • Scientific Watch • Intellectual Property

2002-2004 Managing Director, CANCEROPOLE Lyon Rhône-Alpes. Budget 60 M€

1997-2002 Managing Director, Centre d'Immunologie Pierre FABRE,1988 - 1997

1988 - 1997 Head of the Immunology Department, Senior Scientist and Project Leader at GLAXO WELLCOME, Geneva Biomedical Research Institute, Geneva, Switzerland

1984 - 1987 Research Scientist in the Immunological Research Center UNICET, Dardilly (France), subsidiary company of SCHERING PLOUGH (USA)

Areas of research interest

SCIENTIFIC MEMBERSHIPS • American Association for the Advancement of Science • American Association of Immunologists • Société Française d'Immunologie • Collegium Internationale Allergologicum

OTHER MEMBERSHIPS • President of the Alsace BioValley association • Member of the Ordre National du Mérite • Member of the Mérieux Foundation • Member of the investment board of "INSERM Transfert Développement" • Member of the « INSERM Comité d'orientation stratégique et de suivi des essais cliniques (Cossec) » • Member of the European Society for Cancer Immunology and Immunotherapy (ESCII) • Member of the Scientific Council of the Centre d'Investigation Clinique de Biothérapie at Hôpital Necker H.E.P.G. – COCHIN • Member of the Comité National de Biochimie de l'Académie des Sciences Expert European Commission • Board member of Ecole Doctorale des Sciences de la Vie et de la Santé de Strasbourg • Board member of the Journal of Immunology • Board member of European Journal of Immunology

AD HOC REVIEWER FOR GRANTS Swiss National Foundation • Heart and Lung Foundation • The Wellcome Trust • European Expert (INSERM) Royal Society Research Grants • Swiss Institute for Experimental Cancer Research (ISREC) European Expert DG12 FP5 and FP6 (EU) • Member of the investment board of "INSERM Transfert Développement"

CONTACTS

Jean-Yves Bonnefoy
VP Research & Development
TRANSGENE S.A
Boulevard Gonthier d'Andernach
CS80166, Parc d'Innovation
F - 67405 Illkirch Graffenstaden Cedex

Tél. : +33 (0)6 20 88 50 92/+33 (0)3 88 27 91 50
Email : bonnefoy@transgene.fr

VETOQUINOL

Company Size : 1610
R&D Staff : 128
Annual sales 2010 : € 282 M

History of Commitment in the field of INFECTIOLOGY

Founded in 1933, Vétoquinol is an independent pharmaceutical veterinary laboratory. Its activity is voluntarily well-balanced between livestock and companion animals.
An all-round player, it is involved in the development, manufacturing and marketing of medicinal products and nutraceuticals for veterinary use.
Vétoquinol has extensive expertise in three major therapeutic fields: anti-infectives, pain management and cardiology-nephrology.
Vétoquinol now distributes its products in around a hundred countries (Europe, North America and Asia), thanks to its subsidiaries in 23 countries, supported by a network of 140 distributors.
The group employs more than 1610 people world-wide. It has set up its main Research and Development centre and its largest manufacturing plant in the same location as its head office in Lure, France. There are three more manufacturing sites in Canada, Poland and France.

As a creator of innovative antibiotics, Vétoquinol is one of the European market leader in anti-infectives for companion animals and ranks third in anti-infective injectables for livestock.

Product Portfolio in the Area

• Companion Animal: Aurizon®, Oridermyl®, Clavaseptin®, Cefaseptin®, Enisyl-F®, Marbocyl® P, Marbocyl® Fd.
• Livestock: Marbocyl® 10 %, Marbocyl® 2 %, Marbocyl® S, Ceftiocyl® et Kefloril®.

R&D Focus Portfolio and Prospective in this Area

With nearly 8% of revenues spent on R&D, Vétoquinol places innovation among its top strategic priorities. The Group's ongoing aim is to anticipate the needs of veterinarians, owners and breeders so as to serve them better and thereby increase its market share.

Targeted research in three areas of expertise: The aim of the R&D Department is to respond ever more effectively to the needs of veterinarians, owners and breeders, while anticipating changes in regulation.
Research focuses on targeted therapeutical areas, in line with Vétoquinol's strategy, which is designed to strengthen its leadership position in anti-infectives, while also developing its two other sectors of expertise: pain-inflammation and cardiologynephrology. Approximately twenty projects are currently under development in one of these three areas.

Places of Worldwide Investigations

• The 11th largest veterinary pharmaceutical company in the world and the 3rd largest dedicated to animal health, Vétoquinol is first and foremost an independent, family-owned business. Deeply committed to its values, it has always enjoyed a close relationship with its vet clients.
• Innovation at the crossroads of different fiels: In order to better align and integrate research and efficiency, Vétoquinol has established a Group Division of Innovation, which plays a key role in listening, idea generation.

VETOQUINOL
Matthieu Frechin, CEO
Managing Director

BIOGRAPHY

Training and academic background

1988-1995 Graduated from the Faculty of Pharmacy, Pharmaceutical Industry Option
University of Nancy

1994-1995 MS in Industrial Systems Engineering
National Polytechnic Institute of Lorraine

Industry Background

Vétoquinol – Pharmaceutical Veterinary Laboratory / France

From April 2010 CEO

09/2004-03/2010 Corporate Director – Strategy & Development
Defined the group's strategy
Managed the Business Development, R&D and International Marketing Departments

03/2001-08/2004 Sales Manager – Sales Division France

09/1998-02/2001 Les Laboratoires Servier / France
International Product Manager

07/1997-08/1998 Sanofi Pharma / France
Study Director of "Porfolio" - Strategy Department

Areas of research interest

- Anti-infective
- Cardiology / Nephrology
- Pain / Inflammation

CONTACTS

Tél.: + 33 (0) 1 55 33 50 29
Mob.: +33 (0) 6 77 06 72 89
Fax.: +33 (0) 1 55 33 21 61
Email: matthieu.frechin@vetoquinol.com

VETOQUINOL
Françoise Leblanc, MD.
Anti-infective Innovation Manager

BIOGRAPHY

Training and academic background

1986 Graduated from the Medical University Pierre & Marie Curie Paris VI
Broussais Hôtel-Dieu Hospital / France.
Hospital Infectiology physician.

Industry Background

2003 - until now Vétoquinol – Pharmaceutical Veterinary Laboratory / France
Anti-infective innovative manager in charge of the introduction of new program development in anti-infective, especially antibiotic area.

2006 - until now SIMV Head of technical group on Antibiotherapy.

1993 - 2003 Glaxo, Glaxo Wellcome and Glaxo Smith Klim Laboratory / France
Clinical research in infectious diseases manager (antibiotics and antiviral).
Project leader in new product introduction. Unit safety manager.

1987 - 1993 Diamant Laboratory / Hoecht B Marion Roussel
Project manager in antimicrobial clinical and bacteriology development

Areas of research interest

- Antimicrobial agents, new chemical entities:
  - New Mechanisms of action
  - New targets compounds
  - Antimicrobial resistance
- Antibacterial alternatives
- In vitro and in vivo infectious diseases model
- Drug formularies
- Anti-viral product

CONTACTS

Tél. : + 33 (0) 3 84 62 59 14
Mob. : +33 (0) 6 85 46 74 16
Fax. : +33 (0) 3 84 62 55 16
Email : francoise.leblanc@vetoquinol.com

VIRBAC

R&D Staff: + 200 pers. worldwide
Annual sales 2010: € 572.8 M

The Virbac name derives from VIRology and BACteriology. It emphasizes the deep roots of the company in the infectiology field, especially focusing on immunological approaches to fight infections.

Virbac is the 8th veterinary pharmaceutical company in the world and the first independent laboratory exclusively dedicated to animal health. We are active in all segments – Pharmaceuticals and Biologics, Companion and Food Producing animals – through a full range of products and services. Virbac is present in each of the five continents with 3,100 employees, 5 R&D centres and 7 production sites. Virbac invests yearly 7% of its turnover in R&D, a significant part being devoted to fight animal infectious diseases, some of them being zoonotic diseases.

Virbac has been the first company to introduce a canine homologous parvovirus vaccine in 1981 in Europe, then the first recombinant vaccine against feline leukaemia in 1988. In 2002, Virbac introduced in Europe the first (and only) interferon for companion animals targeting viral diseases.

Since years, Virbac is fighting rabies with injectable vaccines, oral vaccines targeting foxes and oral vaccine for stray dogs. Oral rabies vaccines (SAG 2) for foxes have been instrumental in suppressing fox rabies, and therefore rabies epidemic in Western Europe.

On the 14th of March 2011, Virbac obtained the European Marketing Authorization for the first European vaccine protecting against infection and symptoms of canine leishmaniosis (Leishmania infantum).

Virbac has a broad portfolio of biological and pharmaceutical projects, only focused on Animal Health, addressing the needs of our customers, worldwide, for a large range of species (cat, dog, horse, ruminants, pigs, poultry and fish).

Product Portfolio in the area

- Vaccines (against protozoa)
- Vaccines (viral and bacterial)
- Cytokines (interferon alpha).
- Antibiotics

R&D Focus Portfolio and Prospective in this area

- Vaccines
- Immunology
- Adjuvents
- Immuno stimulant
- Delivery systems for pharmaceuticals including antibiotics
- Alternative to antibiotics

Places of Worldwide Investigations

- R&D Carros-France
- R&D Fort Worth, Texas-USA
- R&D Guadalajara-Mexico
- R&D Milperra-Australia
- R&D Vietnam, Ho Chi Minh City, Asie

VIRBAC
Jean-Pascal Marc
Corporate Product Innovation Director

BIOGRAPHY

Training and academic background

1983 Ecole Vétérinaire d'Alfort
1984 Pitié Salpetriere – DERBH Immunologie Parasitaire
1996 Ceram Sophia Antipolis - MBA

Industry Background

2008 - present Virbac Laboratories – Corporate Product Innovation Director
2000 - 2008 Virbac Laboratories – R&D Corporate Director
1997 - 2000 Virbac Germany – General Manager
1994 - 1997 Virbac Laboratories – International Marketing Director
1991 - 1994 Virbac Espana – Marketing & Sales Director
1988 - 1990 Virbac Laboratories – International product manager companion animals products
1985 - 1988 Virbac Laboratories – Product manager France

Areas of research interest

• Innovation and new products in Animal health

CONTACTS

Tél. : +33 (0) 4 92 08 77 79
Email : jean-pascal.marc@virbac.com

VIRBAC
Gérard-Marie Papierok
Public research partnerships manager

BIOGRAPHY

Training and academic background

1974-1983	Université des Sciences et Techniques de Lille ; France ; UER Biology PhD Cellular Biology Masters : Biochemistry,Microbiology, Organic Chemistry, Biophysics.
1976-1991	Université du Droit et de la Santé de Lille; France, Faculty of medicine: MD /BSci :Doctorates in Medecine and in Human Biology DERBH: Certificates in Human Biology: General Immunology, Parasitic Immunology, Bacteriology,Virology

Special Training

1986	Institute Pasteur Paris: Training in Genetic methods: Prof Thiollais
1998-2001-2004	Vaccine's Future Euro Conferences: Prof Leclerc
1987	University Louis Pasteur Strasbourg France: Peptides, Recombinant proteins use
1991	University Grenoble France: Free radicals in pathology, methods of detection
1985-present	Short-term teacher in Infectiology in diverse French Schools and Universities

Industry Background

2010-present	VIRBAC Group : Public Research and Clusters Partnership Manager
2003-2010	Bio Veto Test Company (VIRBAC Group) France, Co-manager
1993-2003	Bio Veto Test company (www.bvt.fr), Founder and CEO, Bio Veto Test sold to Virbac Group In May 2003
1988-1993	Mycoplasma Company (Signes, France), Associate Co-founder and scientific Manager of International
1984-1988	Institute Pasteur of Lille France (Mycoplasma Laboratory and diagnosis Products development for Diagnostic Pasteur company), Laboratory Chief
1988-present	Filing of 6 European and International patents

Experience in General Industry field

1988	Consultant Engineer at the CCI Armentières Nord (Chamber of Commerce and Industry)
2004-2005	Co-founder of the Provence Alpes Côte d'Azur BIOMEDITERRANEE Biocluster
2006	Cofounder and First Chairman of Competitive Cluster ORPHEME linked to the Ministry of Planning and development
2008-present	Honorary Chairman of Competitive Cluster EUROBIOMED
2011-present	Member elect of the CCI06 (Alpes Maritimes Chamber of Commerce and Industry),
2011-present	Member of ARIIS Board of directors, Member of Scientific Committee of LEEM

Areas of research interest

- Innovation and new products in Health, specially in Infectiology
- Transfert Public/Private.

CONTACTS

Tél.: + 33 6 16 95 38 67
Email: gerard-marie.papierok@virbac.com

VIRBAC
Eric Marée
Chairman of the Executive Board

BIOGRAPHY

Training and academic background

1974 Diplômé d'HEC
1978 MBA Cornell University

Industry Background

Since 1999 VIRBAC laboratories - Chairman of the Executive Board
1996 - 1999 Roche Nicholas laboratories - CEO
1994 - 1996 Roche Consumer Health - Vice President Americas - Japan
1990 - 1994 Rhône Poulenc Rorer General Manager, European OTC Division
1981 - 1990 Mc Kinsey & Co Management consultants – Associate, Principal
1978 - 1981 Compagnie des Métaux Précieux – Treasurer, CFO

CONTACTS

Tél. : + 33 4 92 08 71 74
Email : eric.maree@virbac.com

Notes

3rd INTERNATIONAL RESEARCH MEETING

Hôtel Marigny, Paris, june 10th, 2011

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Hôtel Marigny, Paris, june 10th, 2011