PASTEUR COURSE

VACCINOLOGY

PROGRAM 2019-2020

FEBRUARY 10 – MARCH 6, 2020
PROGRAM OF THE VACCINOLOGY COURSE

(10th February – 6th March, 2020)

DIRECTORS OF THE COURSE

Armelle PHALIPON
Molecular Microbial Pathogenesis Unit
INSERM U1012,
Institut Pasteur

Behazine COMBADIERE
Skin, immunity and Vaccination Lab
Inserm 1135
Centre d’Immunologie et des Maladies Infectieuses - Cimi-Paris

SANOFI PASTEUR

The Institut Pasteur and the organizers warmly thank Sanofi Pasteur for its generous contribution to the Vaccinology course by sponsoring fellowships.

We are also grateful to the following sponsors

E-learning and workshops are prepared in collaboration with HSeT Foundation.
This course offers an integrated overview of Vaccinology by covering all the key issues of vaccine development from design to delivery to the populations in industrialized and developing countries. The course aims at providing the attendees with the knowledge required to become future actors of the international vaccine community. In addition, the worldwide network built-up by the participants over the years helps the emergence of regional/international collaborations. The course encompasses 4 modules: (i) Introduction to Vaccinology an integrative discipline, (ii) Basic principles of preclinical and clinical steps, (iii) Vaccines developed against major infectious diseases, (iv) Future challenges. Besides lectures, time for discussion with the lecturers on a daily-basis and one e-learning-based workshop on vaccine design are key points in the training of the participants.
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00 - 15:00</td>
<td>Introduction to the course</td>
<td>Armelle PHALIPON</td>
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<tr>
<td></td>
<td>Registrar’s office and Education Center presentations</td>
<td>Behazine COMBADIERE</td>
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<tr>
<td>15:00 - 16:00</td>
<td>The Pasteurian contribution to the history of vaccines</td>
<td>Marc GIRARD</td>
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<td>(Académie de Médecine, France)</td>
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<tr>
<td>16:00 - 16:30</td>
<td>Coffee break</td>
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<tr>
<td>16:30 - 18:00</td>
<td>Short presentations of students</td>
<td>Armelle PHALIPON</td>
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<tr>
<td></td>
<td>(Academic Phalipon)</td>
<td>Behazine COMBADIERE</td>
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<td>09:00 - 10:30</td>
<td>The legacy of smallpox eradication: immunization strategies to control,</td>
<td>Daniel TARANTOLA</td>
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<td>eliminate or eradicate vaccine-preventable diseases</td>
<td>(Consultant, France)</td>
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<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<td>11:00 - 12:30</td>
<td>Poliovirus: the next successful eradication story?</td>
<td>Francis DELPEYROUX</td>
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<td>(Consultant, France)</td>
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<td>12:30 - 14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00 - 15:00</td>
<td>Sharing experience session: Eradication, elimination or control?</td>
<td>(D. Tarantola, F. Delpeyroxi, B. Combadière, A.</td>
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<td>Phalipon)</td>
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<tr>
<td>15:30 - 17:30</td>
<td>Presentation of the “Vaccine Design” Workshop</td>
<td>Armelle PHALIPON</td>
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<td>Behazine COMBADIERE</td>
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<tr>
<td>09:00 - 10:30</td>
<td>Epidemiology of infectious diseases: prerequisite for decision-making</td>
<td>Helen CAMPBELL</td>
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<td>in vaccine development</td>
<td>(Public Health England, UK)</td>
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<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:00 - 12:30</td>
<td>Mathematical modeling of infectious disease transmission</td>
<td>Peter WHITE</td>
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<td>(Imperial College, UK)</td>
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</table>
14:00 - 15:00  *Sharing experience session: Epidemiology pre-post vaccination?*  
(H. Campbell, P. White, B. Combadière, A. Phalipon)

15:00 - 15:30  Coffee break

15:30 - 17:30  *Preparation of the “Vaccine Design” Workshop*  
Armelle PHALIPON  
Behazine COMBADIÈRE

**THURSDAY, FEBRUARY 13**

9:00 - 10:30  *What vaccinologists should know about the basic aspects of immune responses*  
Behazine COMBADIÈRE  
(CIMI, France)

10:30 - 11:00  Coffee break

11:00 - 13:00  *Measurement of immune responses*  
Marie-Lise GOUGEON  
(Institut Pasteur, France)

13:00 - 14:30  Lunch

14:30 - 15:30  *Immunological memory: the challenge of conferring long-term protection?*  
Rafick-Pierre SEKALY  
(Case Western Reserve Univ, USA)

15:30 - 16:00  Coffee break

16:00 - 17:00  *Vaccinomics: the future of vaccinology?*  
Rafick-Pierre SEKALY  
(Case Western Reserve Univ, USA)

**FRIDAY, FEBRUARY 14**

9:00 - 10:30  *Adjuvants: past and future directions*  
Giuseppe DEL GUIDICE  
(GSK, Italy)

10:30 - 11:00  Coffee break

11:00 - 12:30  *Maternal immunization*  
Flor MUNOZ-RIVAS  
(Baylor College of Medicine, USA)

12:30 - 14:00  Lunch

14:00 - 15:30  *Hurdles to vaccination in early life: revisiting immunological immaturity in human newborns*  
Arnaud MARCHANT  
(Univ. Libre de Bruxelles, Belgium)

15:30 - 16:00  Coffee break

16:00 - 17:00:  *Sharing experience session: What is the future of vaccination?*  
(F. Munoz, A. Marchant, G. Del Guidice, B. Combadière, A. Phalipon)

1700 - 1800  *Preparation of the Vaccine Design Workshop*
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker/Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 10:30</td>
<td>Novel strategies for delivering vaccines</td>
<td>Behazine COMBADIERE (CIMI Paris, France)</td>
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<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:00 - 12:30</td>
<td>Mucosal immunity: advantages and limitations in developing mucosal vaccines</td>
<td>Cecil CZERKINSKY (IPMC, France)</td>
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<td>12:30 - 14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00 - 15:30</td>
<td>Antigen discovery: from reverse vaccinology to structural vaccinology</td>
<td>Maria PIZZA (GSK, Italy)</td>
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<tr>
<td>15:30 - 16:00</td>
<td>Coffee break</td>
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<tr>
<td>16:00 - 17:00</td>
<td>Sharing experience session: How to choose the appropriate strategy?</td>
<td>(C. Czerkinsky, M. Pizza, B. Combadière, A. Phalipon)</td>
</tr>
</tbody>
</table>
TUESDAY, FEBRUARY 18

9:00 - 10:30  GMP production: which prerequisites and how to proceed  Stephen BROWN  
(Consultant, France)

10:30 - 11:00  Coffee break

11:00 - 12:30  Preclinical safety testing of vaccines  Roy FORSTER  
(CIToxLAB, France)

12:30 - 14:00  Lunch

14:00 - 16:00  Phase I/II vaccine trials: methodology and implementation  Audino PODDA  
(GSK Vaccines Institute for Global Health)

16:00 - 16:30  Coffee break

16:30 - 17:30  Preparation of the “Vaccine Design” Workshop

WEDNESDAY, FEBRUARY 19

9:00 - 10:30  Phase III vaccine trials: methodology and implementation  Audino PODDA  
(GSK Vaccines Institute for Global Health)

10:30 - 11:00  Coffee break

11:00 - 12:30  Establishing a vaccine immune response protective Threshold for licensure: the example of the Pneumococcal conjugate vaccine  Mark FLETCHER  
(Pfizer, France)

12:30 - 14:00  Lunch

14:00 - 15:30  Go / no-go in the vaccine development process  Odile LEROY  
(Consultant, France)

15:30 - 16:00  Coffee break

16:00 - 17:30  Preparation of the “Vaccine Design” Workshop

THURSDAY, FEBRUARY 20

8:30 - 10:00  Vaccines for public health emergencies  Marie-Paule KIENY  
(Inserm, France)

10:00 - 10:30  Coffee break

10:30 - 11:30  Human challenge studies: Design, Considerations, and Role in Vaccine Development  Christiane GERKE  
(Institut Pasteur, France)
11:30 - 12:30  **Preparation of the “Vaccine Design” Workshop**

12:30 - 14:00  *Lunch*

14:00 - 15:00  **Preparation of the “Vaccine Design” Workshop**

15:00 - 16:00  **Correlates of Vaccine Induced Protection**  
Stanley PLOTKIN  
(Vaxconsulting, USA)

16:00 - 16:30  *Coffee break*

16:30 – 17:30  **The State of the Vaccine World**  
Stanley PLOTKIN  
(Vaxconsulting, USA)
# Module III: Update of Vaccine Development for the Major Infectious Diseases

## Friday, February 21

**The Example of New Vaccines Made Recently Available**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 - 10:30</td>
<td>Rotavirus vaccines: success and drawback</td>
<td>Timo VESIKARI</td>
<td>University of Tampere, Finland</td>
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<tr>
<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:00 - 12:30</td>
<td>The success of the glycoconjugate vaccines</td>
<td>Michel BEURRET</td>
<td>Janssen, The Netherlands</td>
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<tr>
<td>12:30 - 14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00 - 15:00</td>
<td>Sharing experience session: Lessons from vaccine success-stories?</td>
<td>(T. Vesikari, M. Beurret, B. Combadière, A. Phalipon)</td>
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<tr>
<td>15:00 - 15:30</td>
<td>Coffee break</td>
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<tr>
<td>15:30 - 17:00</td>
<td>Preparation of the “Vaccine Design” Workshop</td>
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</table>

## Monday, February 24

**Acute Respiratory Infections**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker</th>
<th>Institution</th>
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</thead>
<tbody>
<tr>
<td>09:00 - 10:30</td>
<td>Introduction and discussion on opportunities and challenges to control respiratory disease.</td>
<td>Peter OPENSHAW</td>
<td>Imperial College of London, UK</td>
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<tr>
<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:00 - 12:30</td>
<td>Challenges for development of vaccines against respiratory diseases: the example of RSV</td>
<td>Ruth KARRON</td>
<td>Johns Hopkins University, USA</td>
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<tr>
<td>12:30 - 14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00 - 15:30</td>
<td>Influenza vaccines: the challenge of making a new vaccine each year and developing a universal vaccine</td>
<td>Bruno LINA</td>
<td>Hospices Civils de Lyon, Lyon</td>
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<tr>
<td>15:30 - 16:00</td>
<td>Coffee break</td>
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<tr>
<td>16:00 - 17:00</td>
<td>Sharing experience session: The development of vaccines against respiratory viruses</td>
<td>(B. Lina, R. Karron, B. Combadière, A. Phalipon)</td>
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</tbody>
</table>
TUESDAY, FEBRUARY 25

**MAJOR POVERTY-ASSOCIATED INFECTIOUS DISEASES**

9:00 - 11:00  **Malaria: epidemiology, physiopathology, immune responses, and vaccine development**  
Cheetan CHITNIS  
(Institut Pasteur, France)

11:30 - 13:30  **Lunch**

13:30 - 15:30  **Dengue: epidemiology, physiopathology, immune responses, and vaccine development**  
Bruno GUY  
(Consultant, France)

15:30 - 16:00  **Coffee break**

16:00 - 17:00  **Sharing experience session: Why is it so difficult to develop efficient malaria and dengue vaccines?**  
( C. Chitnis, B. Guy, B. Combadière, A. Phalipon)

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WEDNESDAY, FEBRUARY 26

9:00 - 10:00  **The Burden of Diarrheal Diseases and Prospects for Vaccine Impact**  
Duncan STEELE  
(BMGF, USA)

10:00 - 10:30  **Coffee break**

10:30 - 11:30  **Typhoid fever vaccine implementation in LMIC**  
Duncan STEELE  
(BMGF, USA)

11:30 - 13:30  **Lunch**

13:30 - 14:30  **Update on Shigella vaccine development**  
Armelle PHALIPON  
(Institut Pasteur, France)

14:30 - 15:30  **Sharing experience session: What’s next for vaccines against diarrheal diseases?**  
(D. Steele, A. Phalipon, B. Combadière)

15:30 - 17:00  **Preparation of the “Vaccine Design” Workshop**

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THURSDAY, FEBRUARY 27

9:00 - 10:30  **HPV: a vaccine against virus-induced cancer**  
Benoît SOUBEYRAND  
(Consultant, France)

10:30 - 11:00  **Coffee break**

11:00 - 13:00  **Towards an AIDS vaccine?**  
Brigitte AUTRAN  
(Sorbonne Université, France)
13:00 - 14:00  Lunch

14:00 - 16:00  **BCG, new TB vaccines, and biomarkers for vaccine trial**  Hazel DOCKRELL  
(London School of Hygiene and Tropical Medicine, UK)

16:00 - 16:30  Coffee break

16:30 - 17:30  **Sharing experience session:**  *Are we betting on the right vaccination strategies for TB and HIV worldwide?*  
(B. Autran, B. Soubeyrand, H. Dockrell, B. Combadière, A. Phalipon)
## Module IV: Future Challenges

**Friday, February 28**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Affiliation</th>
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</thead>
<tbody>
<tr>
<td>9:00 - 10:30</td>
<td>Aging population and vaccination</td>
<td>Richard ASPINALL</td>
<td>Ruskin University, UK</td>
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<tr>
<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:00 - 12:30</td>
<td>Anti-cancer vaccines: dream or reality?</td>
<td>Guido GRANDI</td>
<td>University of Trento, Italy</td>
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<tr>
<td>12:30 - 14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00 - 15:00</td>
<td>Vaccine hesitancy</td>
<td>Emilie KARAFILLAKIS</td>
<td>London School of Hygiene and Tropical Medicine, UK</td>
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<tr>
<td>15:00 - 15:30</td>
<td>Coffee break</td>
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<tr>
<td>15:30 - 17:30</td>
<td>Preparation of the “Vaccine Design” Workshop</td>
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**Monday, March 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>9:00 - 10:30</td>
<td>The long and winding road to make vaccines accessible to the population in need: an economical issue</td>
<td>Frederic DEBELLUT</td>
<td>PATH, Geneva</td>
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<tr>
<td>10:30 - 11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:00 - 12:30</td>
<td>Controlled Temperature Chain: the challenge and value of using vaccines out of the cold chain</td>
<td>Anna-Lea KAHN</td>
<td>WHO, Switzerland</td>
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<td>12:30 - 14:00</td>
<td>Lunch</td>
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<tr>
<td>14:00 - 15:00</td>
<td>New Public/Philanthropic Private Partnerships for effective Global Health Vaccines Development</td>
<td>Jean LANG</td>
<td>Sanofi Pasteur, France</td>
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<tr>
<td>15:00 - 15:30</td>
<td>Coffee break</td>
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<tr>
<td>15:30 - 16:30</td>
<td>Globalization of vaccine production</td>
<td>Joël CALMET</td>
<td>Sanofi Pasteur, France</td>
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<tr>
<td>16:30 - 17:30</td>
<td>Sharing experience session: The dream of making vaccines available for all?</td>
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</table>

*(A.L. Khan, F. Debellut, J. Lang, J. Calmet, B. Combadière, A. Phalipon)*
**TUESDAY, MARCH 3**

9:00 - 12:30  **Workshop day with the panel of experts:**

12:30 - 13:55  **Lunch**

13:55 - 14:00  **photo**

14:00 - 17:30  **Workshop day with the panel of experts:**
   O. Leroy, J. Calmet, G. Scarlatti, Jean-Pierre Kraehenbuhl,
   B. Combadière, A. Phalipon

**WEDNESDAY, MARCH 4**

11:00 - 12:30  **What are the issues vaccine manufacturers take into account for go/no go in developing a new vaccine**  
   Rino RAPPUOLI  
   (GSK Vaccines, Italy)

12:30 - 14:00  **Lunch**

14:00 - 15:30  **Visit of the Museum**

**THURSDAY, MARCH 5**

10:00 - 11:00  **Written examination**

**FRIDAY, MARCH 6**

10:00 - 12:00  **Feedback exam / Visit of laboratories**  
   Armelle PHALIPON  
   Behazine COMBADIERE

12:00 - 14:00  **Diploma delivery - Closing party**
**Contacts - Institut Pasteur**

**Directors**

**Armelle PHALIPON**  
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Institut Pasteur, Paris  
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**Education center**

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Email : enseignement@pasteur.fr