INNATE IMMUNITY and INFECTIOUS DISEASES

Pasteur course

PROGRAM

June 11-27, 2018
Institut Pasteur - Paris
This two and half week long course offers lectures on the players and on the mechanisms of the innate immune system and inflammation involved in the defense of the host against pathogens. It also offers lectures on the new tools allowing to study the immune system.

After the discovery of phagocytosis, 135 years ago by Elie Metchnikoff, innate immunity underwent a rebirth following the new definition of the immune system by Charles Janeway and Polly Matzinger and the discovery of the “pattern recognition receptors” awarded by the Nobel Prize in 2011.

The understanding of the mechanisms that control infectious insults have been deciphered these last years, and a precise role of each of the players is now better understood.

Not only innate immunity is common to all animal species, but for those which also have at their disposal an adaptive immunity, the contribution of innate immunity is a prerequisite for its involvement.

Most recently, a memory in innate immune system has been described and contributes to better innate and adaptive responses.

This course is aimed to offer the most up-dated information on the cellular and molecular players of innate immunity, and on the mechanisms that lead to the elimination of the pathogens, of either bacterial, viral, fungal or parasitic origin.

Because innate immunity is closely intricated with inflammation, the involvement of innate immunity with diseases will also be addressed.

Finally, up-to date tools to study the innate immune system will be presented.

Co-directors

Jean-Marc CAVALLO
Unité d’Histopathologie humaine et modèles animaux
Institut Pasteur, Paris

Daniel SCOTT-ALGARA
Unité de Biologie cellulaire des lymphocytes
Institut Pasteur, Paris
# First Week

## Monday, 11 June

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
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</thead>
</table>
| 9:00 - 9:45| Welcome                                       | Monica Sala (executive director of Education department)  
Sylvie Malot - Registrar’s office  
Hervé Waxin & Virginie Ponticelli – Education center |
|            | General Introduction                         | Jean-Marc Cavaillon & Daniel Scott-Algara  
(Institut Pasteur, Paris) |
**Wednesday, 13 June**

9:00 - 10:30  Treg cells  **Laurence Weiss**  
(AP-HP, Hôpital Pompidou, Paris)

11:00 - 12:30  Dendritic cells  **Anne Hosmalin**  
(Institut Cochin, Paris)

14:00 - 15:30  T γ/δ cells  **Julie Déchanet-Merville**  
(CNRS, Université de Bordeaux, Bordeaux)

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**MOLECULAR PLAYERS**

16:00 - 17:30  PAMPs  **Jean-Marc Cavaillon**  
(Institut Pasteur, Paris)

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**Thursday, 14 June**

9:00 - 10:30  Complement system  **Lubka Roumenina**  
(Inserm, Centre de recherche des Cordeliers, Paris)

11:00 - 12:30  Innate Immunity in insects  **Bruno Lemaître**  
(Ecole polytechnique fédérale de Lausanne)

14:00 - 15:30  PRRs: TLR  **Jean-Marc Cavaillon**  
(Institut Pasteur, Paris)

16:00 - 17:30  PPRs: NLR  **Catherine Werts**  
(Institut Pasteur, Paris)

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**Friday, 15 June**

9:00 - 10:30  PPRs: RLR  **Eliane Meurs**  
(Institut Pasteur, Paris)

11:00 - 12:30  Anti-microbial peptides  **Jean-Michel Sallenave**  
(Inserm, Hôpital Bichat, Paris)

14:00 - 15:30  Cytokines  **Jean-Marc Cavaillon**  
(Institut Pasteur, Paris)

16:00 - 17:30  Chemokines  **Sofie Struyf**  
(University of Leuven, Leuven)
# Second Week

## Monday, 18 June

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Institution</th>
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</thead>
<tbody>
<tr>
<td>9:00 - 10:30</td>
<td>DAMPs (alarmins)</td>
<td>Lionel Apetoh</td>
<td>Inserm, UMR, Dijon</td>
</tr>
<tr>
<td>11:00 - 12:30</td>
<td>Anti-infectious role of cytokines</td>
<td>Jean-Marc Cavaillon</td>
<td>Institut Pasteur, Paris</td>
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<tr>
<td>14:00 - 15:30</td>
<td>Mucosal innate immunity</td>
<td>Nadine Cerf-Bensussan</td>
<td>Inserm, Institut Imagine, Paris</td>
</tr>
<tr>
<td>16:00 - 17:30</td>
<td>Microbiota and Immune system</td>
<td>Valérie Gaboriau-Routhiau</td>
<td>Inserm, Imagine, Paris</td>
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## Tuesday, 19 June

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<tr>
<td>9:00 - 10:30</td>
<td>How bacterial exotoxins target/subvert innate immunity</td>
<td>Laurent Boyer</td>
<td>INSERM U1065, Nice</td>
</tr>
<tr>
<td>11:00 - 12:30</td>
<td>Innate immunity and viral infections</td>
<td>Daniel Scott-Algarra</td>
<td>Institut Pasteur, Paris</td>
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<td>14:00 - 15:30</td>
<td>Virus immune evasion strategies</td>
<td>Geoffrey L. Smith</td>
<td>University of Cambridge, Cambridge</td>
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<tr>
<td>16:00 - 17:30</td>
<td>Innate immunity and parasitic infections</td>
<td>Gerald Spaeth</td>
<td>Institut Pasteur, Paris</td>
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## Wednesday, 20 June

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<td>9:00 - 10:30</td>
<td>Innate immunity and fungal infections</td>
<td>Oumaima Granet</td>
<td>Institut Pasteur, Paris</td>
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## Interactions Host - Pathogens

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## Regulation of the Innate Immune Response

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<td>Immunometabolism</td>
<td>David Finlay</td>
<td>Trinity College Dublin, Ireland</td>
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Epigenetic control of innate immune response
Mélanie Hamon
(Institut Pasteur, Paris)

Innate immunity memory
Jessica Quintin
(Institut Pasteur, Paris)

Thursday, 21 June

9:00 - 10:30  Nervous system regulation of immune response
Monique Lafon
(Institut Pasteur, Paris)

11:00 - 12:30  Links between innate and adaptive immunity
Molly Ingersoll
(Institut Pasteur, Paris)

14:00 - 15:30  Innate immunity and bacterial infection
Philippe Sansonetti
(Institut Pasteur, Paris)

16:00 - 17:30  Resolution of inflammation by lipid mediators
Lucy Norling
(Barts and the London School of Medicine & Dentistry, London)

Friday, 22 June

9:00 - 10:30  Genetic control of innate immunity
Lluis Quintana-Murci
(Institut Pasteur, Paris)

11:00 - 12:30  Non-coding RNA in innate Immunity
Dimitris Lagos
(The University of York, UK)

INNATE IMMUNITY, INFLAMMATION and DISEASES

14:00 - 15:30  Bowel diseases
Jean-Pierre Hugot
(AP-HP, Hôpital Robert Debré, Paris)

16:00 - 17:30  Atherosclerosis
Marina de Bernard
(University of Padova, Italia)
**Monday, 25 June**

9:00 - 10:30  Sepsis & Inflammation  
Jean-Marc Cavaillon  
(Institut Pasteur, Paris)

11:00 - 12:30  Lung inflammatory disorders  
Lhousseine Touqui  
(Institut Pasteur, Paris)

14:00 - 15:30  Cancer  
Cecilia Garlanda  
(Humanitas University, Milano, Italia)

**STUDYING INNATE IMMUNE SYSTEM**

16:00 - 17:30  Parameters influencing the immune response and its study  
Jean-Marc Cavaillon  
(Institut Pasteur, Paris)

**Tuesday, 26 June**

9:00 - 10:30  Organs-on-chips  
Samy Gobaa  
(Institut Pasteur, Paris)

11:00 - 12:30  Humanized mice  
Sylvie Garcia  
(Institut Pasteur, Paris)

14:00 - 15:30  Monitoring of immune cells in vivo  
Philippe Bousso  
(Institut Pasteur, Paris)

16:00 - 17:30  Single cell technology and High-throughput analysis  
Fabrice Porcheray and Christophe Vedrine  
(Bioaster, Paris)

**Wednesday, 27 June**

9h00 - 10:30  Free

11:00 - 12:30  EXAM

14:00 - 15:30  Visit of the Museum

16:00 - 17:00  Results