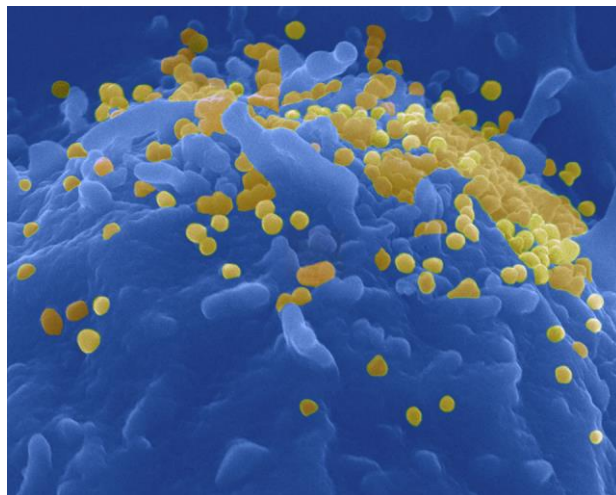


Pasteur course

# INNATE IMMUNITY and INFECTIOUS DISEASES



## PROGRAM

**May 4-20, 2020**  
**Institut Pasteur - Paris**

## INNATE IMMUNITY AND INFECTIOUS DISEASES COURSE

*(from May 4 to May 20, 2020)*

**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 CAVAILLON**  
Institut Pasteur, Paris  
Agence Nationale de la Recherche

**Daniel SCOTT-ALGARA**  
Unité de Biologie cellulaire  
des lymphocytes  
Institut Pasteur, Paris

## First Week

## Monday, 4 May

**9:00 - 9:45      Welcome**

**Monica Sala** (executive director of Education department)  
**Virginie Ponticelli – Education center**

General Introduction **Jean-Marc Cavaillon & Daniel Scott-Algara**  
(Institut Pasteur, Paris)

## Historical Background

|              |  |   |
|--------------|--|---|
| 9:45 - 11:00 | From miasma to bacteria &<br>Once upon a time inflammation | <b>Jean-Marc Cavaillon</b><br>(Institut Pasteur, Paris) |
|--------------|--|---|

## CELLULAR PLAYERS

11:15 - 12:30    Innate lymphoid cells

**Gérald Eberl**  
(Institut Pasteur, Paris)

13:45 - 15:00     $\gamma/\delta$  T cells

**Julie Déchanet-Merville**  
(CNRS, Université de Bordeaux, Bordeaux)

15:15 - 16:30    Macrophages **Jean-Louis Mège**  
(Faculté de médecine Aix-Marseille)

16:45 - 18:30 ***SELF PRESENTATION OF STUDENTS***

## Tuesday, 5 May

|              |            |   |
|--------------|------------|---|
| 9:00 - 10:15 | Mast cells | <b>Salah Mecheri</b><br>(Institut Pasteur, Paris) |
|--------------|------------|---|

10:30 - 11:45    NK cells

**Daniel Scott-Algara**  
(Institut Pasteur, Paris)

13:30 - 14:45    NKT cells and MAIT cells

**Maria Leite de Moraes**  
(Univ. Paris-Descartes, Paris)

15:00 - 16:15    Th17 cells

**Jagadeesh Bayry**  
(Centre de Recherche des Cordeliers, Paris)

16:30 - 18:30 **SELF PRESENTATION OF STUDENTS**

### Wednesday, 6 May

|               |  |   |
|---------------|--|---|
| 9:00 - 10:15  | Regulatory T cells (Treg cells)                      | <b>Laurence Weiss</b><br>(Hôpital G. Pompidou, Paris)     |
| 10:00 - 11:45 | Dendritic cells                                      | <b>Anne Hosmalin</b><br>(Institut Cochin, Paris)          |
| 12:00         | <b>Group photo</b> (in front of the museum building) |   |
| 13:30 - 14:45 | Neutrophils  | <b>Sylvie Chollet-Martin</b><br>(Institut Pasteur, Paris) |
| 15:00 - 16:15 | Innate B cells                                       | <b>Cécile Benezech</b><br>(Edinburgh)                     |

### **MOLECULAR PLAYERS**

|               |       |   |
|---------------|-------|---|
| 16:30 - 18:00 | PAMPs | <b>Jean-Marc Cavaillon</b><br>(Institut Pasteur, Paris) |
|---------------|-------|---|

### Thursday, 7 May

|               |                            |   |
|---------------|----------------------------|---|
| 9:00 - 10:30  | Cytokines                  | <b>Jean-Marc Cavaillon</b><br>(Institut Pasteur, Paris)             |
| 11:00 - 12:30 | Innate Immunity in insects | <b>Bruno Lemaître</b><br>(Ecole polytechnique fédérale de Lausanne) |
| 14:00 - 15:30 | PPRs: TLR                  | <b>Jean-Marc Cavaillon</b><br>(Institut Pasteur, Paris)             |
| 16:00 - 17:30 | PPRs: NLR                  | <b>Catherine Werts</b><br>(Institut Pasteur, Paris)                 |

### Friday, 8 May

|               |                         |   |
|---------------|-------------------------|---|
| 9:00 - 10:30  | PPRs: RLR               | <b>Anastasia Komarova</b><br>(Institut Pasteur, Paris)          |
| 11:00 - 12:30 | Anti-microbial peptides | <b>Jean-Michel Sallenave</b><br>(Inserm, Hôpital Bichat, Paris) |
| 14:00 - 15:30 | DAMPs (alarmins)        | <b>Lionel Apetoh</b><br>(Inserm, UMR, Dijon)                    |
| 16:00 - 17:30 | Chemokines              | <b>Sofie Struyf</b><br>(University of Leuven, Leuven)           |

## Second Week

### Monday, 11 May

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

### ***INTERACTIONS HOST - PATHOGENS***

11:00 - 12:30    Virus immune evasion strategies    **Geoffrey L. Smith**  
(Cambridge, UK)

14:00 - 15:30    Mucosal innate immunity    **Nadine Cerf-Bensussan**  
(Inserm, Institut Imagine, Paris)

16:00 - 17:30    Innate immunity and parasitic infections    **Gerald Spaeth**  
(Institut Pasteur, Paris)

### Tuesday, 12 May

9:00 - 10:30    Innate immunity and viral infections    **Daniel Scott-Algara**  
(Institut Pasteur, Paris)

11:00 - 12:30    Innate immunity and fungal infections    **Oumaima Granet**  
(Institut Pasteur, Paris)

14:00 - 15:30    Innate immunity and bacterial infections    **Jean-Claude Sirard**  
(Inserm, Lille)

16:00 - 17:30    How bacterial exotoxins target/subvert innate immunity    **Laurent Boyer**  
(INSERM U1065, Nice)

### ***REGULATION OF THE INNATE IMMUNE RESPONSE***

### Wednesday, 13 May

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

11:00 - 12:30    Epigenetic control of innate immune response    **Mélanie Hamon**  
(Institut Pasteur, Paris)

14:00 - 15:30    Innate immune cells and metabolism    **Agnes Lehuen**  
(Inserm, Paris)

16:00 - 17:30 Innate immune memory

**Jessica Quintin**  
(Institut Pasteur, Paris)

### Thursday, 14 May

9:00 - 10:30 Microbiota and immune system

**Valérie Gaboriau-Routhiau**  
(Inserm, Paris)

11:00 - 12:30 Links between innate and adaptive immunity

**Anna Smed Sörensen**  
(Stockholm)

14:00 - 15:30 Resolution of inflammation by lipid mediators

**Lucy Norling**  
(Barts and the London School  
of Medicine & Dentistry, London)

16:00 - 17:30 Genetic control of innate immunity

**Lluís Quintana-Murci**  
(Institut Pasteur, Paris)

### Friday, 15 May

9:00 - 10:30 Free

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 Inflammatory Bowel diseases

**Jean-Pierre Hugot**  
(AP-HP, Hôpital Robert Debré, Paris)

16:00 - 17:30 Atherosclerosis

**Marina de Bernard**  
(University of Padova, Italia)

### Third Week

### Monday, 18 May

9:00 - 10:30 Sepsis & Inflammation

**Jean-Marc Cavaillon**  
(Institut Pasteur, Paris)

11:00 - 12:30 Lung inflammatory disorders

**Lhoussaine 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

**Jean-Marc Cavaillon**  
(Institut Pasteur, Paris)

### Tuesday, 19 May

9:00 - 10:30 Organs-on-chips

**Alessandro Polini**  
(CNR Nanotec, Lecce, Italie)

11:00 - 12:30 Humanized mice

**Sylvie Garcia**  
(Institut Pasteur, Paris)

14:00 – 15:30 Single cell technology and High-throughput analysis

**Christophe Vedrine**  
(Bioaster, Paris)

16:00 – 17:30 Monitoring of immune cells in vivo

**Philippe Bousso**  
(Institut Pasteur, Paris)

### Wednesday, 20 May

9:00 - 10:30 Free

11:00 - 12:30 EXAM

14:00 – 15:30 Visit of the Museum

15:30 - 17:00 Results and cocktail reception