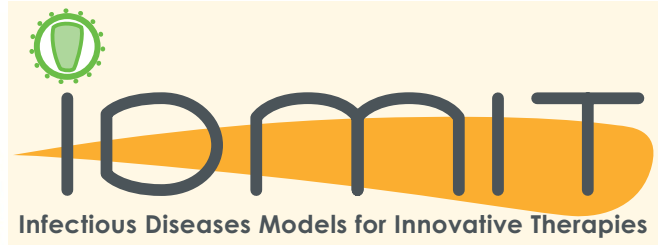




**IMVA**  
center for Immunology of Viral  
infections and Autoimmune diseases  
UMR 1184 - Université Paris-Sud - CEA - Inserm



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**“LIVE Students welcome, teaching and practical courses”  
(n = 23)**

**3<sup>rd</sup> to 5<sup>th</sup> (am) December 2018**

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**(CEA-FAR site/IDMIT Buiding)**

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**10h30 – Welcome/coffee  
(Bt 62)**

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## **Day 1/Conferences (3<sup>rd</sup> of December)**

**→ Preclinical studies, animal ethics and welfare**

10h45-11h15– DUCANCEL Frédéric (Deputy director)

**« General presentation of IDMIT»**

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11h15-12h00 – LE GRAND Roger (Head of IDMIT Department)

**« Animal models & preclinical studies »**

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12h00-12h45 – HO TSONG FANG Raphaël (Head of the laboratory « Animal Science & Welfare »)

**« Animal ethics and welfare»**

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**13h00-14h00 – Lunch**

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**→ Cutting-hedge technologies**

14h15-15h00 – CHAPON Catherine (Head of the laboratory « Infection and immunity imaging»)

**« Infection and *in vivo* imaging»**

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15h00-15h45 – GALLOUET Anne-Sophie (Laboratory « FlowCytech»)

« Flow- and Mass-cytometry to monitor immune responses»

→ **Vaccinology and vaccines**

15h45-16h30 – MARTINON Frédéric (Team leader)

« Basic mechanism of vaccines: what we learn from preclinical models »

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**Coffee break**  
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16h45-17h30 – BEIGNON Anne-Sophie (Team leader)

« Systems biology for Vaccines »

17h30-18h15 –BEIGNON Anne-Sophie (Team leader)

« Vaccine-induced innate and adaptive memories »

.....  
**18h15-18h45– General Discussion**  
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**18h45 – End of Day 1**

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**Day 2/Bioinformatics/Visits & Practical courses (4<sup>th</sup> of December)**

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**Visits & Practical courses**

→ **Two half-groups (group 1) and (group 2) of about 10-12 students each**

**Group 1 (10h00-12h00)**

→ **IDMIT visit: Raphael Ho Tsong Fang & Benoît Delache**

- Biosafety level 2 & 3 animal facilities

### Group 2 (10h00-12h00)

→ Analysis and integration of high-dimensional Cytometry data:

N. Tchitchek

- Principles of high-dimensional cytometry analysis
- Automatic identification of cell populations using SPADE and viSNE
- Identification of relevant biological populations using SPADEVizR
- Integration of cell cluster abundances with clinical and –omics data
- Predicting of biological outcomes using cytometry profiles

.....  
**12h15-13h15 – Lunch**  
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### Group 2 (13h30-15h30)

→ IDMIT visit: Raphael Ho Tsong Fang & Benoît Delache

- Biosafety level 2 & 3 animal facilities

### Group 1 (13h30-15h30)

→ Analysis and integration of high-dimensional Cytometry data:

N. Tchitchek

- Principles of high-dimensional cytometry analysis
- Automatic identification of cell populations using SPADE and viSNE
- Identification of relevant biological populations using SPADEVizR
- Integration of cell cluster abundances with clinical and –omics data
- Predicting of biological outcomes using cytometry profiles

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### Group 2 (15h45-16h45)

In vivo imaging: N. Kahlaoui

- *In vivo* TEP-TDM: equipment and principal

### Group 1 (15h45-16h45)

In vivo imaging: C. Mayet

- *In vivo* two-photon microscopy: equipment and principal
- .....

### Group 2 (16h45-17h45)

In vivo imaging: C. Mayet

- *In vivo* two-photon microscopy: equipment and principal

**Group 1 (16h45-17h45)**

*In vivo* imaging: N. Kahlaoui

- *In vivo* TEP-TDM: equipment and principal

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**17h45 – End of Day 2**

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**Half-Day 3/Bioinformatics (am of 5<sup>th</sup> of December)**

→ All students together

**09h30-12h00**

→ Analysis and integration of -omics data: N. Tchitck

- Principles of –omics data analysis
- Preprocessing and processing of microarrays and NGS data
- Statistical analysis approaches and graphical representations to analyze –omics data
- Differential and kinetics analyses to identify –omics biomarkers
- Functional enrichment methods for interpreting –omics data
- Mathematic strategies to model –omics data

→ Data storage and LIMS management: B. Targat

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**12h00 – End of Day 3**

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**12h15-13h15 – Lunch**

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**Departure**