Artificial Intelligence in Biology and Health

July 3rd and 4th, 2023

Duclaux Auditorium, Institut Pasteur (IP), Paris

MONDAY, JULY 3RD

1:30 PM — **WELCOME COFFEE**
Duclaux Auditorium

2:00 PM — **INTRODUCTION**
Stewart COLE
President of Institut Pasteur

2:15 - 3:05 PM — **KEYNOTE**
Jean-Philippe VERT
Owkin, Paris, France
Large language models for proteins and DNA

3:05 PM — AI FOR OMICS
Duclaux Auditorium

Session chair: Olivier SPERANDIO, IP

3:05 PM — **Laura CANTINI**, IP
Multi-modal learning for single-cell high-throughput data

3:20 PM — **Thierry MORA**, ENS PSL
Statistical modeling of immune receptors and their antigens

3:35 PM — **David BIKARD**, IP
Combining sequence models, functional information, and physics grounded modeling for the design of novel protein variants

3:50 PM — **Thomas WALTER**, École des Mines
Computational Pathology for small datasets by slide-level self-supervised learning

4:05 PM — POSTERS FLASH TALKS

4:25 PM — **COFFEE BREAK POSTER SESSION**
Atrium François Jacob

4:55 PM — AI FOR STRUCTURAL BIOLOGY
Duclaux Auditorium

Session chair: David BIKARD, IP

4:55 PM — **Marc DELARUE**, IP
Optimal Transport as a metric for classification and deep-learning methods

5:10 PM — **Olivier SPERANDIO**, IP
Data-driven approaches to the design of therapeutic compounds against macromolecular interactions

5:25 PM — **Océane FOURQUET**, IP
Two-dimensional monotonic classifiers for the discovery of interpretable associations between molecular and clinical features in complex disease

5:25 - 6:15 PM — **KEYNOTE**
Maria RODRIGUEZ MARTINEZ
IBM Research Laboratory, Zurich, Switzerland
Interpretable deep learning to model the immune system

6:30 PM — **POSTER SESSION**
Atrium François Jacob

7:00 PM — **END OF FIRST DAY**

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TUESDAY, JULY 4TH

8:30 AM — **WELCOME COFFEE**
Duclaux Auditorium

9:00 - 9:50 AM — **KEYNOTE**
Anna KRESHUK
EMBL, Heidelberg, Germany
Accessible Machine Learning for Microscopy

9:50 AM — **AI FOR IMAGING**
Duclaux Auditorium

Session chair: Marc DELARUE, IP

9:50 AM — **Jean-Baptiste MASSON,** IP
Statistical Testing under biophysical model intractability and/or model uncertainties

10:05 AM — **Ninon BURGOS**, ICM
Detecting anomalies in brain images with deep generative models

10:20 AM — **Jiachuan BAI,** IP
Towards deep learning-assisted super-resolution imaging in live cells

10:35 AM — **Hervé TURLIER,**
Collège de France
Realistic z-interpolation for 3D medical & fluorescent imaging

11:00 AM — **COFFEE BREAK POSTER SESSION**
Atrium François Jacob

11:50 - 12:40 PM — **KEYNOTE**
Fabian THEIS
Helmholtz Zentrum München, Munich, Germany
Generative AI for modeling single-cell responses

12:40 AM — **CLOSING SESSION**
Duclaux Auditorium

Session chair: Christophe ZIMMER, IP

12:40 - 1:00 PM — **POSTER PRIZE CONCLUSIONS**

1:00 PM — **LUNCH BUFFET**
Atrium François Jacob

2:30 PM — **END OF SYMPOSIUM**

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POSTERS

1) Deep learning-driven structural investigation of the atypical phospholipid trafficking Mla system in *Veillonella parvula*
Benjamin BARDIAUX, Institut Pasteur

2) Canonical mircocircuits and the compressibility of neural connectomes
Alexis BÉNICHOU, Institut Pasteur

3) Learning to unmix single-color SMLM data for multicolour SMLM imaging
Solène BERNARD, Institut Pasteur

4) Predicting Immunotherapy response in lung cancer using machine learning for integrating imaging, anatomo-pathological and omics data
Nicolas CAPTIER, Institut Curie

5) AI-aided diagnostic: Evaluate allergy response severity and therapy follow-up with machine learning
Alban FAURE, Institut Pasteur

6) DeepPrism: Channel Convolution for Sparse Generative Model
Changqing FU, Ceremade Dauphine

7) Improving fetal MRI annotation with self-supervised learning and virtual reality
Charlotte GODARD, Institut Pasteur

8) Paired single-cell multi-omics data integration with Mowgli
Geert-Jan HUIZING, Institut Pasteur

9) A deep learning powered visualization interface for analyzing Alzheimer's disease biomarkers
Anuradha KAR, Paris Brain Institute

10) Deep learning identifies antibiotic mode of action from label-free high-throughput images
Daniel KRENTZEL, Institut Pasteur

11) Characterizing transcriptional regulators governing microglia heterogeneity using gene regulatory contexts
Claire LANSONNEUR, Institut Pasteur

12) DeXtrusion: automatic recognition of epithelial cell extrusion in vivo
Gaëlle LETORT, Institut Pasteur

13) ZAugNET: can we see much better in 3D?
Alessandro PASQUI, College-De-France

14) Molecular mechanisms reconstruction from single-cell multi-omics data with HuMMuS
Trimbour RÉMI, Institut Pasteur

15) Predicting sequence determinants of an hypermutagenesis system
Paul ROCHETTE, Institut Pasteur

16) Disentangling Cellular Heterogeneity with Multimodal single-cell Integration
Jules SAMARAN, Institut Pasteur

17) Uncertainty-based quality assessment of carotid segmentation in black-blood MRI
Elina THIBEAU-SUTRE, Institut Pasteur

18) Fully synthetic learning for segmenting newborn brain MRI
Romain VALABREGUE, UPMC

19) Imaging data platform
Simona BOTTANI, DEEMEA

20) **Andjela DAVIDOVIC**, Institut Pasteur, TBD

21) **Rahul GAURAV**, Paris Brain Institute, TBD

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CONTACTS

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TRANSVERSAL ACTION ON AI 1ST SYMPOSIUM

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FIND YOUR WAY IN THE CAMPUS

ℹ Accueil Informations	**07** Le PASTEUR	**13** Centre Médical	**25** Sergent
01 Emile DUCLAUX	**08** Annexe n° 8	**14** GÉNOPOLE®	**26** à **28** François JACOB
02 Gabriel BERTRAND	**09** Pavillon Louis MARTIN	**15** CIS	
03 Ernest FOURNEAU	**10** Pavillon Emile ROUX	**22** André LWOFF	
05 Serre	**11** Bâtiment du 205	**23** Bâtiment Administratif	**P** Parking sous-sol
06 Bâtiment Social	**12** Pasteur BioTop	**24** Résidence des Stagiaires	**♿** Stationnement handicapés
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