

Elsa Bernard

Education

- 2012-2016 **PhD in Bioinformatics**, *PSL Research University/Institut Curie*, Paris, France.
○ Deciphering splicing with sparse regression techniques in the era of high-throughput RNA sequencing.
○ Supervisor: Jean-Philippe Vert.
- 2012 **Master of Science in Probability and Statistics**, *University Paris 7*, Paris, France.
○ Obtained with the highest honors.
- 2008-2012 **Bachelor of Science in Geosciences**, *Ecole Normale Supérieure*, Paris, France.

Work Experiences

- 2016-present **Postdoctoral Research Fellow**, *Computational Oncology*, MSKCC, New York, USA.
○ Classification, prognosis and disease evolution in myelodysplastic syndromes.
○ Mentor: Elli Papaemmanuil.
- 2012-2016 **PhD student in Bioinformatics**, *CBIO*, Institut Curie, Paris, France.
- 2011 **Research assistant in Statistics**, *LSCE*, CEA, Saclay, France.
- 2009 **Research assistant in Geosciences**, *CAOS*, NYU, New York, USA.

Awards

- 2020 **EvanMDS Young Investigator Award**.
- 2019 **ASH Abstract Achievement Award**.
- 2017 Recipient of the **Francois Wallace Monahan Fellowship**.
- 2016 **Excellent Shotgun Communication Award** at the 1st International Conference in Splicing.
- 2013 **Second place at the DREAM 8 NHIES-NCATS-UNC Toxicogenetics challenge**.
- 2012 **PhD scholarship**, *Ecole Normale Supérieure*.

Student Supervision

- 2020 Emile Cohen. Master student at *École des Ponts ParisTech*.
Pan-cancer evaluation of *TP53* allelic state.
- 2020 Lily Monnier. Master student at *CentraleSupélec*.
Prognosis models development in MDS.
- 2019 Araxe Sarian. Master student at *Mines ParisTech*.
Allelic state of *TP53* mutations in MDS and AML.
- 2019 Philippe Pinel. Master student at *Mines ParisTech*.
Molecular classification of MDS patients.
- 2018 Pierre Guilmin. Master student at *Mines ParisTech*.
Supervised learning for somatic variant classification.
- 2017 Yoann Pradat. Master student at *Mines ParisTech*.
Integration of clinical and molecular data for prognosis models in AML.
- 2014 Ingrid Vallée. Master student at *Paris Descartes University*.
Study of BRCA1 splice variants with targeted RNA-sequencing.

Other Research Activities

- Peer review Blood, Leukemia Research, Nucleic Acids Research, Bioinformatics, BMC Bioinformatics, Annals of Applied Statistics, Frontiers in Genetics.
- Conference Program Committee, International Society for Computational Biology ISMB/ECCB, 2017-present.
- Scientific visit Huber lab, EMBL Heidelberg, May 2015. Predicting in vitro drug responses on CLL cell lines.

Selected Communications

- 12/2019 Implication of *TP53* allelic state for genome stability, clinical presentation and outcomes in myelodysplastic syndromes. *ASH 2019*.
- 12/2018 Mutational Impact on Diagnostic and Prognostic Evaluation of MDS. *ASH 2018 MDS Symposium*.
- 09/2016 A time- and cost-effective clinical diagnosis tool to quantify abnormal splicing from targeted single-gene RNA-seq. *Splicing 2016 conference*.
- 12/2014 A convex formulation for joint RNA isoform detection and quantification from multiple RNA-seq samples. *NIPS 14 workshop on computational biology*.
- 11/2013 Kernel bilinear regression for toxicogenetics. *RECOMB 13 conference with DREAM challenges*.
- 12/2012 Efficient sparse method for RNA isoforms identification and quantification from RNA-seq data with network flows. *NIPS 12 workshop on computational biology*.

Preprints

- KL Bolton, RN Ptashkin, ... **E Bernard** ..., A Zehir, E Papaemmanuil. Oncologic therapy shapes the fitness landscape of clonal hematopoiesis. *bioRxiv*, 2019.

Publications

- E Bernard**, Y Nannya, RL Hasserjian et al. Implications of *TP53* allelic state for genome stability, clinical presentation and outcomes in myelodysplastic syndromes. *Nat. Med.*, doi: <https://doi.org/10.1038/s41591-020-1008-z>, 2020.
- EH Rustad, K Misund, **E Bernard** et al. Stability and uniqueness of clonal immunoglobulin CDR3 sequences for MRD tracking in multiple myeloma. *Am. J. Hematol.*, 94:1364-1373, 2019.
- E Lamprianidou, E Zoulia, **E Bernard** et al. Mechanism of action of azacytidine: A riddle wrapped up in an enigma. *Leukemia & Lymphoma*, 12:1-5, 2019.
- A Kazachenka, GR Young, ... , **E Bernard**, E Papaemmanuil, I Kotsianidis, G Kassiotis. Epigenetic therapy of myelodysplastic syndromes connects to cellular differentiation independently of endogenous retroelement derepression. *Genome Med.*, 11(1):86, 2019.
- J-L Plouhinec, S Medina-Ruiz, C Borday, **E Bernard** et al. A molecular atlas of the developing ectoderm defines neural, neural crest, placode and nonneural progenitor identity in vertebrates. *PLOS Biology*, 15(10), 2017.
- E Bernard**, Y Jiao, E Scornet, V Stoven, T Walter, J-P Vert. Kernel multitask regression for toxicogenetics. *Molecular Informatics*, 36(10), 2017.
- F Eduati, LM Mangravite, ... **E Bernard**, ... Y Xie, J Saez-Rodriguez. Prediction of human population responses to toxic compounds by a collaborative competition. *Nat. Biotechnol.*, 33(9):933-40, 2015.
- E Bernard**, L Jacob, J Mairal, E Viara, J-P Vert. A convex formulation for joint RNA isoform detection and quantification from multiple RNA-seq samples. *BMC Bioinformatics*, i16:262, 2015.

- **E Bernard**, L Jacob, J Mairal, J-P Vert. Efficient RNA isoform identification and quantification from RNA-seq data with network flows. *Bioinformatics*, 30(17):2447-2455, 2014.
- **E Bernard**, P Naveau, M Vrac, O Mestre. Clustering of maxima: spatial dependencies among heavy rainfall in france. *Journal of Climate*, 26,7929-7937, 2013.
- KS Smith and **E Bernard**. Geostrophic turbulence near rapid changes in stratification. *Physics of Fluids*, 25,046601, 2013.