

Guillaume Filion

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PERSONAL INFORMATION

Born in Drummondville (Canada) September 4, 1979.

Languages French, English, Spanish, Russian, Dutch, German.

RESEARCH EXPERIENCE

from 2012: Junior group leader

Center for Genomic Regulation (Barcelona, Spain)

My current focus is to understand how genomes are organized. To this aim, we are developing technologies to study position effects. This requires new statistical and computational methods that are also developed within the team.

2008-2011: Post-doctoral fellow in the lab of Bas van Steensel

Netherlands Cancer Institute (Amsterdam, The Netherlands)

During my post-doc, my collaborators and myself redefined the Drosophila chromatin. Using genome-wide technologies and computational tools, we proposed a classification of chromatin in 5 basic states that suggests the existence of yet-to-discover silencing mechanisms.

2004-2007: PhD thesis in the lab of Pierre-Antoine Defossez

Curie Institute (Paris, France)

During my PhD, I discovered two new mammalian zinc finger proteins able to bind meCpGs (ZBTB4 and ZBTB38). Using an in vitro method that I developed, I could show that those proteins have different intrinsic binding specificities.

EDUCATION

2003-2004: M2, Human Genetics

Université Denis Diderot (Paris, France)

2001-2003: M2, Molecular Biology

Ecole Normale Supérieure (Lyon, France)

2000-2001: L3 (BSc) Biology

Concordia University (Montreal, Canada)

1998-2000: L2 Biology

Université Claude Bernard (Lyon, France)

FUNDING

2015-2017: AGAUR

13 K€ of consumables

2014-2019: ERC Synergy Grant

1.5 M€ distributed in salaries and consumables.

2012-2015 EpiGeneSys RISE1

Salary for a post-doc position.

2012-2016 Marie Curie Career Integration Grant

80 K€ of consumables.

2013-2017 Plan Nacional

Salary for a post-doc position.

2012-2017 CRG core funding

Consumables (80K€/year), and salary for four positions.

PRIZES AND AWARDS

RISE1 member of the EpiGeneSys network 2012

EMBO Short-Term mobility fellowship 2006

École Normale Supérieure de Lyon first rank on national competition 2000

MEETING ORGANIZATION

EpiGeneSys Meeting: Spain, 2014

EDITORIAL EXPERIENCE

PLOS Computational Biology

PLOS Genetics

TEACHING EXPERIENCE

2014-2015: Summer school SMTB

Research practicals for highschool students (Puschino, Russia)

2008-2015: Occasional university lectures

M2 students, Universitat Pompeu Fabra (Barcelona, Spain)

M1 students, Vrije Universiteit (Amsterdam, The Netherlands)

Université Paul Sabatier (Toulouse, France).

2004-2007: Mendelian genetics

L2 students, Université Denis Diderot (Paris, France)

PRESENTATIONS AT MEETINGS (selection)

Intelligent Systems for Molecular Biology: Ireland, 2015
Network Models in Cellular Regulation: Spain, 2015
Statistical Methods for Post Genomic Data: Germany, 2015
Society for Bioinformatics in Northern Europe: Norway, 2014
EpiGeneSys meeting: United Kingdom, 2013
Boheringer meeting: Germany, 2012
Epigenetics, from bases to pathology: France, 2011
EMBL Functional Genomics meeting: Germany, 2010
Dutch-Belgian Chromatin meeting: The Netherlands, 2010

REVIEWING EXPERIENCE

I wrote peer reviews for academic journals including Nature Biotechnology, Nature Methods, Nature Communications, Cell Reports, PLOS Genetics, Nucleic Acids Research, PLOS ONE, BMC Genomics, Chromosome Research, Nucleus.

My reviewer statistics are available from Publons at the address below. I take pride in writing open reviews. The text of every review written from 2014 is available online at the same address.

<https://publons.com/author/315077/guillaume-filion#stats>

SOFTWARE DEVELOPMENT

from 2015: zerone

A ChIP-seq discretizer with quality control (<https://github.com/nanakiksc/zerone>).

from 2014: seeq

A library for inexact DNA matching (<https://github.com/ezorita/seeq>).

from 2014: starcode

A sequence clustering algorithm (<https://github.com/guillaume/starcode>).

from 2011: PubCron

A personal literature watch (<http://pubcron.appspot.com>).

COMMUNITY & OUTREACH ACTIVITIES

2012-present: Author of a blog on statistics and their application to biology

(<http://blog.thegrandlocus.com>)

2005-2007: Students representative at the laboratory council

Curie Institute (Paris, France)

2006: Organizer of a career development workshop during the Course on Epigenetics

Curie Institute (Paris, France)

2006-2007: Board member of the PhD students association

Curie Institute (Paris, France)

PUBLICATIONS

1. Cuscó P, **Filion GJ**, Zerone: a ChIP-seq discretizer for multiple replicates with built-in quality control, **Bioinformatics**, in press, doi: 10.1093/bioinformatics/btw336 (2016).
2. Corrales M, Cuscó P, Usmanova DR, Chen HC, Bogatyreva NS, **Filion GJ**, Ivankov DN. *Machine Learning: How Much Does It Tell about Protein Folding Rates?*, **PLoS ONE**, Vol. 10 e0143166. doi: 10.1371/journal.pone.0143166 (2015).
3. **Filion GJ**, Betao M. 3D genome structure. Organization of the nucleus in space and time, **FEBS Letters**, Vol. 589 pp. 28678 (2015). [Editorial]
4. Zorita E, Cuscó P, **Filion GJ**. Starcode: sequence clustering based on all-pairs search, **Bioinformatics**, Vol. 31 pp. 1913-9 (2015).
5. **Filion GJ**. The signed Kolmogorov-Smirnov test: why it should not be used, **Gigasciences**, Vol. 4 doi: 10.1186/s13742-015-0048-7 (2015).
6. Le Dily F, Baù D, Pohl A, Vicent GP, Serra F, Soronellas D, Castellano G, Wright RH, Bal-lare C, **Filion G**, Marti-Renom MA, Beato M. Distinct structural transitions of chromatin topological domains correlate with coordinated hormone-induced gene regulation, **Genes & De-velopment**, Vol. 19 pp. 2151-62 (2014).
7. van Bemmél J, **Filion GJ**, Rosado A, Talhout W, de Haas M, van Welsem T, van Leeuwen F, van Steensel B. A network model of the molecular organization of chromatin in *Drosophila*, **Molecular Cell**, Vol. 49 pp. 759-71 (2013).
8. Steglich B, **Filion G**, van Steensel B, Ekwall K. The inner nuclear membrane proteins *Man1* and *Ima1* link to two different types of chromatin at the nuclear periphery in *S. pombe*, **Nucleus**, Vol. 3 pp. 77-87 (2012).
9. **Filion GJ**, van Bemmél JG, Braunschweig U, Talhout W, Kind J, Ward LD, Brugman W, de Castro Genebra de Jesus I, Kerkhoven RM, Bussemaker H, van Steensel B, *Systematic protein location mapping reveals five principal chromatin types in Drosophila cells*, **Cell**, Vol. 143, pp. 212-24 (2010).
10. **Filion GJ**, van Steensel B, *Reassessing the abundance of H3K9me2 chromatin domains in em-bryonic stem cells*, **Nat Genet**, Vol. 42, p. 4 (2010). [Correspondence]
11. van Steensel B, Braunschweig U, **Filion GJ**, Chen M, van Bemmél JG, Ideker T, *Bayesian network analysis of targeting interactions in chromatin*, **Genome Research**, Vol. 20, pp. 190-200 (2010).
12. Yamada D, Pérez-Torrado R, **Filion GJ**, Caly M, Jammart B, Devignot V, Sasai N, Ravas-sard P, Mallet J, Sastre-Garau X, Schmitz ML, Defossez PA, *The Human protein kinase HIPK2 phosphorylates and downregulates the methyl-binding transcription factor ZBTB4*, **Oncog-ene**, Vol. 28, pp. 2535-44 (2009).
13. Augui S, **Filion GJ**, Huart S, Nora E, Guggiari M, Maresca M, Sterwart AF, Heard E, *Sensing X chromosome pairs before X inactivation via a novel X-pairing region of the Xic*, **Sci-ence**, Vol. 318, pp. 1632-6 (2007).
14. **Filion GJ**, Fouvry L, Defossez PA, *Using reverse electrophoretic mobility shift assay to mea-sure and compare protein-DNA binding affinities*, **Analytical Biochemistry**, Vol. 357, pp. 156-8 (2006).
15. **Filion GJ**, Paul RE, Robert V, *Transmission and immunity: the importance of heterogeneity in the fight against malaria*, **Trends in Parasitology**, Vol. 22, pp. 345-8 (2006). [Review]

16. **Filion GJ**, Zhenilo S, Salozhin S, Yamada D, Prokhortchouk E, Defossez PA, *A family of human zinc finger proteins that bind methylated DNA and repress transcription* **Molecular and Cellular Biology**, Vol. 26, pp. 169–81 (2006).
17. Defossez PA, Kelly KF **Filion GJ**, Perez-Torrado R, Magdinier F, Menoni H, Nordgaard CL, Daniel JM, Gilson E, *The human enhancer blocker CTC-binding factor interacts with the transcription factor Kaiso* **Journal of Biological Chemistry**, Vol. 280, pp. 43017–23 (2005).