Florian **Wünnemann**

Postdoctoral fellow at the Lettre lab

Montreal Heart Institute

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***Research and scientific interests**: Human genetics, Single cell OMICS, Heart development, Bioinformatics, Open source software*

Experience

Montreal Heart Institute — *Montreal*

Postdoc — *Aug.2018 - ongoing*

- Lettre group

Universite de Sherbrooke — *Sherbrooke*

Professionnel recherche niv. II — *Jan. 2019 - ongoing*

- GenAP team

IEB, University of Münster — *Münster, Germany*

Student Research assistant — *Jan.2012 - Jul.2012*

- Acquisti group

IEB, University of Münster — *Münster, Germany*

Student assistant — *Sep.2011 - Dec.2011*

- Acquisti group

IEB, University of Münster — *Münster, Germany*

Student assistant — *Mar.2011 - May 2011*

- Bornberg-Bauer group

Education

University of Münster / CHU Sainte Justine Research Center — *Münster, Germany / Montreal, Canada*

Ph.D (Dr.rer.nat) — *Apr.2014 - Apr.2018*

- The role of genetic factors in pathogenesis and progression of cardiac malformations"

University of Münster — *Münster, Germany*

Master of science (MSc) — *Oct.2011 - Feb.2014*

- Functional and genetic characterization of a novel arrhythmic syndrome

University of Münster — *Münster, Germany*

Bachelor of science (BSc) — *Oct.2008 - Sep.2011*

- Impact of nutrient limitation in insects: Comparative genomics of the pea aphid and the human body louse

Funding History

Postdoctoral Training (Canadian citizens and permanent residents) scholarship, Fonds de recherche Québec santé (FRQS) — *2019 - 2021*

Achievements and Awards

Montreal, Canada

Jean-Louis Levesque 1st price for best presentation by the Foundation of the Montreal Heart Institute (MHI), 22nd Montreal Heart Institute research day — *2019*

Montreal, Canada

Prix d'excellence by the Fondation du recherche du Québec (FRQS) for the best presentation, 32e Congrès de la recherche des étudiantes des cycles supérieurs et des post-doctorants en recherche au CHU Sainte-Justine — *2017*

Durham, USA

Markwald Award for presentation with most unusual clarity. Weinstein Cardiovascular Development and Regeneration Conference 2016

2016

Presentations

American Society of Human Genetics (ASHG) Meeting 2019

Houston, Texas, USA

Prioritization of genomic loci for coronary artery disease using targeted CRISPR screens for endothelial dysfunction

15.10.2019 - 19.10.2019

XXIIe Journée de la recherche ICM

Montreal, Canada

Validation of genome-wide polygenic risk scores for coronary artery disease in French Canadians

06.06.2019 - 06.06.2019

American Society of Human Genetics (ASHG) Meeting 2017

Orlando, Florida, USA

Identification of a novel marker for valve maturation: Loss of ADAMTS19 function causes progressive valve disease in mice and men

18.10.2017 - 18.10.2017

Congrès de la recherche des étudiantes des cycles supérieurs et des post-doctorants en recherche au CHU Sainte-Justine

Montreal, Canada

Heart valve dysfunction in men and mice is caused by loss of function mutations in Adamts19, a novel marker for valvular interstitial cells

26.05.2017 - 26.05.2017

Weinstein Cardiovascular Development and Regeneration Conference 2016

Durham, North Carolina, USA

Loss of Adamts19, a novel marker for valvular interstitial cell populations during valve maturation, causes aortic valve dysfunction

18.05.2016 - 21.05.2016

Evolgen, collaborative meeting on genome evolution

Ciążeń, Poland

ACTransDB: An online database for Acanthamoeba castellani transcripts,

27.06.2012 - 28.06.2012

2nd Muenster graduate school evolution symposium

University of Münster, Germany

Biogeochemistry meets molecular evolution via metagenomics: tracing nitrogen fluxes from ecosystems to genomes in microbial communities

18.06.2012 - 19.06.2012

Poster presentations

Weinstein Cardiovascular Development and Regeneration Conference

Nara, Japan

A single-cell perspective on growth and maturation pathways in the mouse heart.

16.05.2018 - 18.05.2018

American Society of Human Genetics (ASHG) 2014

San Diego, California, USA

De novo mutation in SOX18 causes a novel form of Hypotrichosis-Lymphedema-Telangiectasia with severe vascular defects

18.10.2014 - 22.10.2014

42nd Annual Meeting of the Ecological Society of Germany, Austria and Switzerland 2012

Lueneburg, Germany

Soil metagenomics to unravel the signature of fertilizers on the molecular composition of the bacterial ribosome

10.09.2012 - 14.09.2012

Publications

1. Wünnemann, F., Tadjo, T. F., Beaudoin, M., Lalonde, S., Lo, K. S., & Lettre, G. (2021). CRISPR perturbations at many coronary artery disease loci impair vascular endothelial cell functions. *bioRxiv*.
2. Wünnemann, F., Ta-Shma, A., Preuss, C., Leclerc, S., Vliet, P. P. van, Oneglia, A., Thibeault, M., Nordquist, E., Lincoln, J., Scharfenberg, F., & others. (2020). Loss of ADAMTS19 causes progressive non-syndromic heart valve disease. *Nature Genetics*, *52*(1), 40–47.
3. Audain, E., Wilsdon, A., Breckpot, J., Izarzugaza, J. M., Fitzgerald, T. W., Kahlert, A., Sifrim, A., Wuennemann, F., Perez-Riverol, Y., Abdul-Khaliq, H., & others. (2020). Integrative analysis of genomic variants reveals new associations of candidate haploinsufficient genes with congenital heart disease. *bioRxiv*.
4. Churakov, G., Kuritzin, A., Chukharev, K., Zhang, F., Wünnemann, F., Ulyantsev, V., & Schmitz, J. (2020). A 4-lineage statistical suite to evaluate the support of large-scale retrotransposon insertion data to reconstruct evolutionary trees. *bioRxiv*.

5. Gould, R. A., Aziz, H., Woods, C. E., Seman-Senderos, M. A., Sparks, E., Preuss, C., Wünnemann, F., Bedja, D., Moats, C. R., McClymont, S. A., & others. (2019). ROBO4 variants predispose individuals to bicuspid aortic valve and thoracic aortic aneurysm. *Nature Genetics*, *51*(1), 42–50.

6. Luyckx, I., Kumar, A. A., Reyniers, E., Dekeyser, E., Vanderstraeten, K., Vandeweyer, G., Wünnemann, F., Preuss, C., Mazzella, J.-M., Goudot, G., & others. (2019). Copy number variation analysis in bicuspid aortic valve-related aortopathy identifies TBX20 as a contributing gene. *European Journal of Human Genetics*, *27*(7), 1033–1043.

7. Wünnemann, F., Sin Lo, K., Langford-Avelar, A., Busseuil, D., Dubé, M.-P., Tardif, J.-C., & Lettre, G. (2019). Validation of genome-wide polygenic risk scores for coronary artery disease in french canadians. *Circulation: Genomic and Precision Medicine*, *12*(6), e002481.

8. Gould, R., Aziz, H., Woods, C., Seman-Senderos, M., Sparks, E., Preuss, C., Wünnemann, F., Bedja, D., Moats, C., McClymont, S., & others. (2019). Baylor-hopkins center for mendelian genomics; MIBAVA leducq consortium. ROBO4 variants predispose individuals to bicuspid aortic valve and thoracic aortic aneurysm. *Nat Genet*, *51*(01), 42–50.

9. Preuss, C., Wünnemann, F., & Andelfinger, G. (2017). At the heart of a complex disease "molecular genetics of congenital heart disease." *eLS*, 1–9.

10. Gillis, E., Kumar, A. A., Luyckx, I., Preuss, C., Cannaerts, E., Van De Beek, G., Wieschendorf, B., Alaerts, M., Bolar, N., Vandeweyer, G., & others. (2017). Candidate gene resequencing in a large bicuspid aortic valve-associated thoracic aortic aneurysm cohort: SMAD6 as an important contributor. *Frontiers in Physiology*, *8*, 400.

11. Gillis, E., Kumar, A. A., Luyckx, I., Preuss, C., Cannaerts, E., Beek, G. van de, Wieschendorf, B., Alaerts, M., Bolar, N., Vandeweyer, G., & others. (2017). Corrigendum: Candidate gene resequencing in a large bicuspid aortic valve-associated thoracic aortic aneurysm cohort: SMAD6 as an important contributor. *Frontiers in Physiology*, *8*, 730.

12. Wünnemann, F., Kokta, V., Leclerc, S., Thibeault, M., McCuaig, C., Hatami, A., Stheneur, C., Grenier, J.-C., Awadalla, P., Mitchell, G. A., & others. (2016). Aortic dilatation associated with a de novo mutation in the SOX18 gene: Expanding the clinical spectrum of hypotrichosis-lymphedema-telangiectasia syndrome. *Canadian Journal of Cardiology*, *32*(1), 135–e1.

13. Preuss, C., Capredon, M., Wünnemann, F., Chetaille, P., Prince, A., Godard, B., Leclerc, S., Sobreira, N., Ling, H., Awadalla, P., & others. (2016). Family based whole exome sequencing reveals the multifaceted role of notch signaling in congenital heart disease. *PLoS Genetics*, *12*(10), e1006335.

14. Wünnemann, F., & Andelfinger, G. U. (2016). Molecular pathways and animal models of hypoplastic left heart syndrome. In *Congenital heart diseases: The broken heart* (pp. 649–664). Springer, Vienna.

15. Chetaille, P., Preuss, C., Burkhard, S., Côté, J.-M., Houde, C., Castilloux, J., Piché, J., Gosset, N., Leclerc, S., Wünnemann, F., & others. (2014). Mutations in SGOL1 cause a novel cohesinopathy affecting heart and gut rhythm. *Nature Genetics*, *46*(11), 1245.

Languages

- German (mother-language)
- English (fluent)
- French (fluent)