Florian Wünnemann

Postdoctoral fellow at the Lettre lab

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

Experience

Aug.2018 - ongoing
Postdoc, *Montreal Heart Institute*, Montreal.
- Lettre group

Jan. 2019 - ongoing
Professionnel recherche niv. II, *Universite de Sherbrooke*, Sherbrooke.
- GenAP team

Jan.2012 - Jul.2012
Student Research assistant, *IEB, University of Münster*, Münster, Germany.
- Acquisti group

Sep.2011 - Dec.2011
Student assistant, *IEB, University of Münster*, Münster, Germany.
- Acquisti group

Mar.2011 - May 2011
Student assistant, *IEB, University of Münster*, Münster, Germany.
- Bornberg-Bauer group

Education

Apr.2014 - Apr.2018
Ph.D (Dr.rer.nat), *University of Münster / CHU Sainte Justine Research Center*, Münster, Germany / Montreal, Canada.
- The role of genetic factors in pathogenesis and progression of cardiac malformations"

Oct.2011 - Feb.2014
Master of science (MSc), *University of Münster*, Münster, Germany.
- Functional and genetic characterization of a novel arrhythmic syndrome

Oct.2008 - Sep.2011
Bachelor of science (BSc), *University of Münster*, Münster, Germany.
- Impact of nutrient limitation in insects: Comparative genomics of the pea aphid and the human body louse

Funding History

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

Achievements and Awards

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

2017 **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**, *Montreal, Canada.*

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

Presentations

15.10.2019 - 19.10.2019 **Prioritization of genomic loci for coronary artery disease using targeted CRISPR screens for endothelial dysfunction**, *American Society of Human Genetics (ASHG) Meeting 2019*, Houston, Texas, USA.

06.06.2019 - 06.06.2019 **Validation of genome-wide polygenic risk scores for coronary artery disease in French Canadians**, *XXIIe Journée de la recherche ICM*, Montreal, Canada.

18.10.2017 - 18.10.2017 **Identification of a novel marker for valve maturation: Loss of ADAMTS19 function causes progressive valve disease in mice and men**, *American Society of Human Genetics (ASHG) Meeting 2017*, Orlando, Florida, USA.

26.05.2017 - 26.05.2017 **Heart valve dysfunction in men and mice is caused by loss of function mutations in Adamts19, a novel marker for valvular interstitial cells**, *Congrès de la recherche des étudiantes des cycles supérieurs et des post-doctorants en recherche au CHU Sainte-Justine*, Montreal, Canada.

18.05.2016 - 21.05.2016 **Loss of Adamts19, a novel marker for valvular interstitial cell populations during valve maturation, causes aortic valve dysfunction**, *Weinstein Cardiovascular Development and Regeneration Conference 2016*, Durham, North Carolina, USA.

27.06.2012 - 28.06.2012 **ACTransDB: An online database for Acanthamoeba castellani transcripts,**, *Evolgen, collaborative meeting on genome evolution*, Ciążeń, Poland.

18.06.2012 - 19.06.2012 **Biogeochemistry meets molecular evolution via metagenomics: tracing nitrogen fluxes from ecosystems to genomes in microbial communities**, *2nd Muenster graduate school evolution symposium*, University of Münster, Germany.

Poster presentations

16.05.2018 - 18.05.2018 **A single-cell perspective on growth and maturation pathways in the mouse heart.**, *Weinstein Cardiovascular Development and Regeneration Conference*, Nara, Japan.

18.10.2014 - 22.10.2014 **De novo mutation in SOX18 causes a novel form of Hypotrichosis-Lymphedema-Telangiectasia with severe vascular defects**, *American Society of Human Genetics (ASHG) 2014*, San Diego, California, USA.

10.09.2012 - 14.09.2012 **Soil metagenomics to unravel the signature of fertilizers on the molecular composition of the bacterial ribosome**, *42nd Annual Meeting of the Ecological Society of Germany, Austria and Switzerland 2012*, Lueneburg, Germany.

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)