

Sascha Hoogendoorn, Ph.D.

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Education

- 2009–2014 Ph.D. in Chemistry (cum laude: highest honors), Leiden University, the Netherlands
Promotors: prof. dr. H.S. Overkleeft and prof. dr. G.A. van der Marel
- 2006–2008 M.Sc. in Chemistry (cum laude), Leiden University, the Netherlands
Advanced courses in chemistry, track "Design and Synthesis".
- 2004–2008 B.Sc. in Biopharmaceutical Sciences (cum laude), Leiden University, the Netherlands
Undergraduate courses in biopharmaceutical sciences.
- 2002–2007 B.Sc. in Chemistry (cum laude), Leiden University, Leiden, the Netherlands
Undergraduate courses in chemistry.

Employment

Tenure-Track Assistant Professor

- 2019–current Department of Organic Chemistry and NCCR Chemical Biology, University of Geneva, Switzerland

Postdoctoral Fellow

- 2013–2018 Chemical and Systems Biology, Stanford School of Medicine, California, USA
PI Prof. Dr. James K. Chen
Description Development of genetic screening methodologies to study the Hedgehog signaling pathway.

Dissertation

- 2009–2014 Bio-organic Synthesis, Leiden University and Medical Biochemistry, AMC Amsterdam, the Netherlands
Title A chemical biology approach for targeting of ligand-drug conjugates
Supervisors Prof. Dr. G.A. van der Marel, Prof. Dr. H.S. Overkleeft (Leiden), Dr. R. Boot, Prof. Dr. J.M.F.G. Aerts (Amsterdam)
Description Design, synthesis and biological evaluation of ligand-fluorophore-biological effector conjugates for selective targeting of membrane receptors.

Teaching

- 2020 Lecturer, General Chemistry I, 1st year organic chemistry (24h), UNIGE
- 2019 Lecturer, Current Topics in Chemical Biology, MSc. Chemical Biology (4h), UNIGE
- 2019–current Supervision of an apprentice, University of Geneva, Switzerland
- 2019–current Responsible professor for the second and third-year teaching labs Organic Chemistry, University of Geneva, Switzerland
- 2019-current Lecturer, Molecular genetics, 2nd year bachelor (2h), UNIGE
- 2016–2018 AWIS (Association for Women In Science, Palo Alto Chapter), USA, mentor.
- 2005–2010 Assisted laboratory and research-based courses for undergraduate students in Organic Chemistry, Drug Discovery and Molecular Cell Biology.
- 2003–2009 Teaching chemistry to high-school students to prepare them for their final exams. These 3-day courses covered all basic chemistry. Leiden, The Netherlands

Supervision of Graduate Students

- 2019–current Supervision of 3 PhD students, Faculty of Science, University of Geneva, Switzerland

2009–2013 Supervision of four M.Sc. students in Chemistry/Biopharmaceutical Sciences, working on their master thesis project (6-12 months full-time), Leiden University, The Netherlands

Memberships in Institutional Panels

2008–2012 Member of the PhD platform, Holland Research School of Chemistry (HRSMC).
2005–2008 Member of the student echelon of the Faculty Council, Faculty of Science, Leiden University.
2005–2008 Student member of the education committee Chemistry, Leiden University. This committee guards the quality of the bachelor and master program
2006–2007 Student member of the national committee for quality assessment of Chemistry programs, QANU.
Every 5 years, Dutch academic education programs (Bachelor and Master) are evaluated by an external committee established by QANU (Quality Assurance Netherlands Universities). Approval by this committee is necessary to obtain accreditation for the program.

Active Memberships

2019 Swiss Chemical Society

Organization of Conferences

2019–current Organizer of the weekly seminar series of the Department of Organic Chemistry, University of Geneva, Switzerland
2019–2020 International Chemical Biology symposium 2020, NCCR Chemical Biology, Geneva

Prizes, Awards, Fellowships

2015–2016 Seed grant, Stanford Center for Systems Biology, Stanford University, USA
2014–2016 Rubicon postdoctoral fellowship, NWO, the Netherlands
2011 Poster prize "Molecular Science", CHAINS conference, NWO, the Netherlands
2011 Travel award to attend the IPS meeting, Fellingafonds, KNCV, the Netherlands
2010 Poster prize, Organic Chemistry and Synthesis Study Group Meeting, NWO, the Netherlands
2008 Unilever research prize, for best master thesis in Chemistry, Unilever, the Netherlands
2008 Financial support to conduct a research internship at Mount Sinai, NY, USA.

- Fellowship, dr Saal van Zwanenbergstichting, The Netherlands
- Study grant, dr Hendrik Muller's Vaderlandsch Fonds, the Netherlands
- LIFS subsidy, Leiden University International Study Fund, the Netherlands
- Travel award, Nederlandse Hersenstichting, the Netherlands

Project Funding

2019 'Inhibitors of cilia and Hedgehog signaling: from phenotype to mechanistic understanding', Project grant, SNSF, Switzerland – CHF723'322
2019 'High-content screen for small-molecule modulators of Hedgehog signaling and ciliogenesis', NCCR Chemical Biology, Switzerland – CHF69'750

Career Breaks

July–Oct 2015 Maternity leave
May–Aug 2018 Maternity leave
Oct–Dec 2018 Parental leave

Publications

1. **Hoogendoorn, S.***, Aye, Y. (2020). Empowering global chemical biology at the dawn of the new decade. *ACS Chemical Biology*. *Accepted*
2. Breslow, D.K.* , **Hoogendoorn, S.***, Kopp, A.R., Morgens, D.W., Vu, B.K., Kennedy, M.C., Han, K., Li, A., Hess, G.T., Bassik, M.C., Chen, J.K., Nachury, M.V. (2018). A CRISPR-based screen for Hedgehog signaling provides insights into ciliary function and ciliopathies. *Nature Genetics*, 50:460-471. * *Co-first author*. *BioRxiv*: <https://doi.org/10.1101/156059>
3. Kallemeijn, W.W., Scheij, S., **Hoogendoorn, S.**, Witte, M.D., Herrera Moro Chao, D., van Roomen, C.P.A.A., Ottenhoff, R., Overkleeft, H.S., Boot, R.G., Aerts, J.M.F.G. (2017). Investigations on therapeutic glucocerebrosidases through paired detection with fluorescent activity-based probes. *PLoS ONE* 12(2): e0170268.
4. de Bruin, G., Mock, E.D., **Hoogendoorn, S.**, van den Nieuwendijk, A.M.C.H., Mazurek, J., van der Marel, G.A., Florea, B.I., Overkleeft, H.S. (2016). Enantioselective synthesis of adamantylalanine and carboranylalanine and their incorporation into the proteasome inhibitor bortezomib. *Chemical Communications* 52:4064-4067.
5. See, S.K., **Hoogendoorn, S.**, Chung, A.H., Ye, F., Steinman, J.B., Sakata-Kato, T., Miller, R.M., Cupido, T., Zalyte, R., Carter, A.P., Nachury, M.V., Kapoor, T.M., Chen, J.K. (2016). Cytoplasmic Dynein Antagonists with Improved Potency and Isoform Selectivity. *ACS Chemical Biology*, 11:53–60.
6. van den Berg, R. J. B. H. N., van Rijssel, E. R., Ferraz, M. J., Houben, J., Strijland, A., Donker-Koopman, W. E., Wennekes, T., Bongers, K. M., Ghisaidoobe, A. B. T., **Hoogendoorn, S.**, van der Marel, G. A., Codée, J. D. C., Overkleeft, H. S., Aerts, J. M. F. G. (2015). Synthesis and Evaluation of Hybrid Structures Composed of Two Glucosylceramide Synthase Inhibitors. *ChemMedChem*, 12:2042-2062
7. **Hoogendoorn, S.***, Mock, E. D.* , Strijland, A., Donker-Koopman, W. E., van den Elst, H., van den Berg, R. J. B. H. N., Aerts, J. M. F. G., van der Marel, G. A., Overkleeft, H. S. (2015). Ortho-Carborane-Modified *N*-Substituted Deoxynojirimycins. *European Journal of Organic Chemistry* 20:4437-4446. **Co-first author*
8. Wong, C.-S.* , **Hoogendoorn, S.***, van der Marel, G.A., Overkleeft, H.S., Codée, J.C. (2015). Targeted Delivery of Fluorescent High-Mannose-Type Oligosaccharide Cathepsin Inhibitor Conjugates. *ChemPlusChem* 80:928-937. **Co-first author*
9. Liu, N., **Hoogendoorn, S.**, van de Kar, B., Kaptein, A., Barf, T., Driessen, C., Filippov, D.V., van der Marel, G. A., van der Stelt, M., Overkleeft, H.S. (2015). Direct and two-step bioorthogonal probes for Bruton's tyrosine kinase based on ibrutinib: a comparative study. *Organic & Biomolecular Chemistry* 13:5147-5157.
10. **Hoogendoorn, S.**, van Puijvelde, G.H.M., Kuiper, J., van der Marel, G.A., Overkleeft, H.S. (2014). A Multivalent Ligand for the Mannose-6-Phosphate Receptor for Endolysosomal Targeting of an Activity-Based Probe. *Angewandte Chemie Int. Ed.* 53: 10975-10978.
11. Li, K.-Y., Jiang, J., Witte, M.D., Kallemeijn, W.W., van den Elst, H., Wong, C.-S., Chander, S.D., **Hoogendoorn, S.**, Beenakker, T.J.M., Codée, J.D.C., Aerts, J.M.F.G., van der Marel, G.A., Overkleeft, H.S. (2014). Synthesis of Cyclophellitol, Cyclophellitol Aziridine, and Their Tagged Derivatives. *European Journal of Organic Chemistry*, 27: 6030-6043.
12. Baggelaar, M.P., Janssen, F.J., van Esbroeck, A.C.M., den Dulk, H., Allara, M., **Hoogendoorn, S.**, McGuire, R., Florea, B., Meeuwenoord, N., van den Elst, H., Visser, L., van der Marel, G.A., Brouwer, J., Doherty, P., Di Marzo, V., Overkleeft, H.S., van der Stelt, M. (2013). Identification of Novel DAG-lipase- α Inhibitors with Unprecedented Selectivity in Brain Using Comparative ABPP and In Silico Design. *Angewandte Chemie Int. Ed.* 52: 12081-12085.
13. Van der Linden, W.A., Li, N., **Hoogendoorn, S.**, Ruben, M., Verdoes, M., Guo, J., Boons, G.-J., van der Marel, G.A., Florea, B.I., Overkleeft, H.S. Two-step bioorthogonal activity-based proteasome profiling using copper-free click reagents: A comparative study. *Bioorganic & Medicinal Chemistry* (2012) 20:662-666.

14. Willems, L.I., van der Linden, W.A., Li, N., Li, K.-Y., Liu, N., **Hoogendoorn, S.**, van der Marel, G.A., Florea, B.I., Overkleeft, H.S. (2011). Bioorthogonal chemistry: Applications in activity-based protein profiling. *Accounts of Chemical Research* 44: 718-729. *Review*.
15. **Hoogendoorn, S.**, Willems, L., Florea, B., Overkleeft, H. Hypersensitive response to over-reactive cysteines. (2011). *Angewandte Chemie Int. Ed.* 50: 5434-5436. *Highlight*.
16. **Hoogendoorn, S.**, Blom A.E.M., Willems, L.I., van der Marel, G.A., Overkleeft, H.S. (2011). Synthesis of pH-activatable red fluorescent BODIPY dyes with distinct functionalities. *Organic Letters*, 13: 5656-5659.
17. **Hoogendoorn, S.**, Habets, K.L., Passemard, S., Kuiper, J., van der Marel, G.A., Florea, B.I., Overkleeft, H.S. (2011). Targeted pH-dependent fluorescent activity-based cathepsin probes. *Chemical Communications* 47: 9363-9365.
18. Bonger, K.M.*, **Hoogendoorn, S.***, van Koppen, C.J., Timmers, C.M., van der Marel, G.A., Overkleeft, H.S. (2011). Development of selective LH receptor agonists by heterodimerization with a FSH receptor antagonist. *ACS Medicinal Chemistry Letters* 2: 85-89. **Co-first author*
19. Van Delft, P., Meeuwenoord, N.J., **Hoogendoorn, S.**, Dinkelaar, J., Overkleeft, H.S., van der Marel, G.A., Filippov, D.V. (2010). Synthesis of oligoribonucleic acid conjugates using a cyclooctyne phosphoramidite. *Organic Letters* 12:5486-5489.
20. Bonger, K.M.*, **Hoogendoorn, S.***, van Koppen, C.J., Timmers, C.M., Overkleeft, H.S., van der Marel, G.A. (2009). Synthesis and pharmacological evaluation of dimeric follicle-stimulating hormone receptor antagonists. *ChemMedChem* 4:2098-2102. **Co-first author*
21. Gomes, I., Grushko, J.S., Golebiewska, U., **Hoogendoorn, S.**, Gupta, A., Heimann, A.S., Ferro, E.S., Scarlata, S., Fricker, L.D., Devi, L.A. (2009). Novel endogenous peptide agonists of cannabinoid receptors. *FASEB J.* 23:3020-3029.