Curriculum vitae

Dr. S. J. Pomplun
s.j.pomplun@lacdr.leidenuniv.nl
Date of birth: 15. Jun. 1985
pomplunlab.com

Academic profile

Since starting his independent career at the LACDR at Leiden University, Sebastian Pomplun has established an internationally recognized research program in early drug discovery, with a particular focus on novel chemical modalities and the targeting of challenging protein–protein interactions and transcription factors. He has secured more than €4 million in competitive research funding as principal investigator, including a prestigious ERC Starting Grant and multiple national and international grants. He was also appointed Oncode Investigator, a competitive program supporting excellent cancer researchers in the Netherlands.

His research program is embedded in a strong network of national and international academic and industrial collaborations, including partnerships with leading pharmaceutical companies and research institutions. His independent research has resulted in more than 10 corresponding-author publications from his Leiden group, including publications in journals such as *Nature Communications*, *Journal of the American Chemical Society*, *Angewandte Chemie*, *Chem*, and *ACS Chemical Biology*.

His personal grant funding supports an independent research group currently consisting of 6 PhD candidates and 4 postdoctoral researchers, for whom he serves as primary supervisor. His work has strong translational potential, reflected by more than 10 filed patents (four from Leiden University) and the recent founding of a Leiden-based biotech spin-off company, where he serves as Chief Scientific Officer.

In teaching, he coordinates and teaches courses on state-of-the-art topics in medicinal chemistry and drug discovery in the Master Biopharmaceutical Sciences program, where his teaching is consistently evaluated with excellent scores (≈9/10). He also serves on the examination committee of the BPS program, with a focus on program quality and innovation in assessment and teaching, particularly in the context of AI in education.

At the institutional level, he co-initiated the Leiden Early Drug Discovery and Development (LED3) seminar series in 2022 together with colleagues from LIC and IBL and has since been one of the main organizers of the LED3 seminar series and symposia, contributing to the visibility and cohesion of the Leiden drug discovery community.

Professional career

Since May 2024	**Associate Professor** at Leiden University, LACDR Drug discovery – Novel Chemical Modalities
Since Jan 2024	**Oncode Junior Investigator**, Oncode Institute
Sep 2021 – Apr 2024	**Assistant Professor** at Leiden University, LACDR Drug discovery – Novel Chemical Modalities
Jan 2019 – June 2021	**PostDoc** at the Massachusetts Institute of Technology (MIT) Boston, Pentelute Lab German research foundation (DFG) fellowship
Sep 2015 – Nov 2018	**PostDoc** at Roche Diagnostic GmbH in Penzberg. R&D - Department of Chemistry - Rare Reagents

Education

October 2015	**Ph.D.** in Organic and Medicinal Chemistry ***Summa cum Laude*** *(October 14th, 2015)* Max Planck Institute for Psychiatry/LMU (Munich, Germany)
Sep 2005 – Jul 2011	**Diploma** in Chemistry and pharmaceutical technologies **Final Mark: *110/110*** University "La Sapienza" (Rome, Italy)

Leiden Early Drug Discovery and Development (LED3) activities

Founder and coorganizer of the LED3 seminar Series (since 2021)
Founder and coorganizer of the LED3 PhD and Postdoc Symposium (since 2024)

Funding (selection)

ERC Starting grant	2022-2027 (1.8 million EUR)
Oncode Institute	2024-2027 (~900k EUR; base funding + tech dev funding)
Volkswagen Freigeist	(2022, 1.6 million EUR) – *DECLINED for geographical reasons*
ERC PoC MYSTIC	2025-2026 (150k EUR)
ERC PoC ExSELence	2025-2026 (150k EUR)
Marie Curie Doctoral Network	2024-2028 (coapplicant, ~300k EUR)
NWO Open Competition M1	2023-2027 (300k EUR)
NWO Open Competition M2	2025-2028 (800k EUR with Prof. Barz)

Selection of recent invited presentations and seminars

Novartis Discovery Sciences – Basel – March 2026
ETH Zuerich – Faculty Seminar – October 2025
Roche pharma R&D Seminar – Basel – October 2025
Edelris ASMS Symposium – Lyon – May 2025
Heidelberg University – Lieseberg Colloqium – April 2025
Frontiers in Medicinal Chemistry – Erlangen – April 2025
Oncode Annual Conference – KIT Amsterdam – November 2024
University of Ljubljana – Faculty Seminar – February 2024

Valorization activities

Over 10 patents filed, 4 of which from Leiden University

Since 2026 CSO of PeptoTx, a Biotech company spun off with Prof. Barz and LURIS

2026: Starting a biotech company for macrocycle discovery with the Self encoded library platform

Current group composition (2026)

6 PhD candidates (2 will defend in 2026), 4 postdoctoral researchers, 1 Technician

Teaching activities and student supervision

Coordinator and lecturer for the Master Biopharmaceutical Sciences course:
Novel Chemical Modalities in Drug Discovery (2023, 24, 25 and 26)
Average lecturer evaluation = 9

Course summary: In this course, students learn about bioactive chemical modalities beyond classical small-molecule drugs that enable targeting disease mechanisms previously considered inaccessible.
The course covers antisense oligonucleotides, peptide-based drugs, antibody–drug conjugates, covalent inhibitors, and molecular glues. Antisense oligonucleotides bind specific RNA sequences to suppress disease-related protein expression. Peptide drugs often modulate protein–protein interactions. Antibody–drug conjugates deliver cytotoxic payloads selectively to diseased cells. Covalent inhibitors provide prolonged target engagement compared to reversible ligands, while molecular glues promote degradation of specific proteins via the proteasome.
For each modality, the course discusses mechanisms, recent literature examples, and design and discovery strategies, as well as key synthesis approaches such as oligonucleotide synthesis, peptide synthesis, and bioconjugation chemistry.
Importantly, in pharmaceutical R&D each new drug target involves a "modality discussion," where teams decide how best to drug the target. This course prepares students for these real-world decision-making processes and for modern industry drug discovery workflows.

Coordinator Master Biopharmaceutical Sciences **introduction course**
Division of Medicinal Chemistry (2024 and 25)

Bachelor students supervised: 17

Master students supervised: 15

Member of **examination committee Biopharmaceutical Sciences**(since 2025)

Key Publications (listed items all from independent group in Leiden with Sebastian Pomplun being corresponding author) **(full list at https://scholar.google.com/citations?user=g4bEsx8AAAAJ&hl=de)**

1) van der Nol, E., Haupt, N. A., Gao, Q. Q., Smit, B. A. M., Hoffmann, M. A., Engler-Lukajewski, M., Ludwig, M., McKenna, S., Mata, J. M., Béquignon, O. J. M., van Westen, G., Wendel, T. J., Noordermeer, S. M., Böcker, S., & **Pomplun, S**. (**2025**). Barcode-free hit discovery from massive libraries enabled by automated small molecule structure annotation. *Nature Communications 2025 16:1*, *16*(1), 9479-. https://doi.org/10.1038/s41467-025-65282-1 ; Open Access

2) Mata, J. M., Liu, J., Havermans, M., McKenna, S. M., Nol, E. van der, Delwel, R., & **Pomplun, S**. J. (**2026**). Massive barcode-free chemical screenings enable the discovery of bioactive macrocycles with passive membrane permeability. *Nature Communications*, https://www.nature.com/articles/s41467-026-71641-3; Open Access

3) Mata, J. M., van der Nol, E., & **Pomplun, S.** J. (**2023**). Advances in Ultrahigh Throughput Hit Discovery with Tandem Mass Spectrometry Encoded Libraries. *Journal of the American Chemical Society* (Vol. 145, Issue 34, pp. 19129–19139). American Chemical Society. https://doi.org/10.1021/jacs.3c04899; Open Access

4) Sean M. McKenna, Martin Šícho, Cas van der Horst, Jesse Maasland, Edith van der Nol, Gianluca Turco, Andrius Bernatavicius, Gerard J.P. van Westen, Laura H. Heitman, **Sebastian Pomplun** (**2026**), Automated Parallel Synthesis Accelerates Virtual Screening Hit Discovery, https://chemrxiv.org/doi/full/10.26434/chemrxiv.15000200/v1

5) Edith van der Nol, Zenshuo Luo, Qing Qing Gao, Nils Alexander Haupt, Sebastian Boecker, **Sebastian Pomplun** (**2026**), Integration of Palladium-Catalyzed C-N Coupling into Self-Encoded Libraries for Accelerated Hit Discovery, *RSC Chemical Biology* https://pubs.rsc.org/en/content/articlelanding/2025/cb/d5cb00303b; Open Access

6) Ellenbroek, B. D., Kahler, J. P., Arella, D., Lin, C., Jespers, W., Züger, E. A., Drukker, M., & **Pomplun, S**. J. (**2024**). Development of DuoMYC: a synthetic cell penetrant miniprotein that efficiently inhibits the oncogenic transcription factor MYC. *Angewandte Chemie International Edition*. https://doi.org/10.1002/anie.202416082
Open Access

7) Kahler, J. P., Ellenbroek B. D., van der Nord, V., van der Water, B., **Pomplun, S.;** ReCHEMbinant stapling enhances intracellular delivery and bioactivity of engineered protein inhibitors, *Chem – Cell Press*; (**2025**), https://doi.org/10.1016/j.chempr.2025.102839 ; Open Access

8) Ellenbroek, B. D., Tirtosentono, A. S. S. & **Pomplun, S. J**. AlphaFold-Guided Discovery of an Overlapping MYC/Miz-1 Interface Enables Peptidomimetic Disruption of MYC/MAX. *ChemMedChem* e202500740 (**2025**) doi:10.1002/CMDC.202500740; Open Access

9) Mike Filius, Thanasis Patsos, Hugo Minnee, Gianluca Turco, Henrick E. Chong, Jingming Liu, Monika Gnatzy, Ramon S. M. Rooth, Andy C. H. Liu, Rosa D. T. Ta, Isa H. A. Rijk, Safiya Ziani, Femke J. Boxman, **S. J. Pomplun;** Evaluating BindCraft for Generative Design of High-Affinity Peptides; ACS Chemical Biology, (**2025**), https://pubs.acs.org/doi/10.1021/acschembio.5c00774; Open Access

10) Brecht D. Ellenbroek, Jan Pascal Kahler, Sophie R. Evers, and **S. J. Pomplun**; Synthetic Peptides: Promising Modalities for the Targeting of Disease-Related Nucleic Acids; *Angewandte Chemie* (**2024**), https://onlinelibrary.wiley.com/doi/10.1002/anie.202401704, Open Access