Roland Hellinger, PHD

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PERSONAL DATA

Birthdate 06/09/1986 | Birthplace Zwettl, Austria | Nationality Austria | Father of one son (*15.0.7.2020)

CURRENT AFFILIATION

Medical University of Vienna (Vienna, Austria), Center for Physiology and Pharmacology*: University Assistant/Post-Doc*

RESEARCH INTEREST

My overall research interest is **chemical and biological peptide sciences** as well as **preclinical drug development** for autoimmune and neurodegenerative human diseases.

Immune system modulatory peptides. I have investigated the immune system modulatory activity of nature derived cyclic cystine-rich knot (CCK) peptides [3, 4] and contributed to the development of the Multiple Sclerosis (MS) drug candidate T20K [8, 23]. My research work showed that these peptides have an anti-proliferative activity on activated human T-cells and that the mechanism of action is IL2 dependent. The lead T20K was able to halt the progression of the disease in the murine model of MS (EAE) showing protective and prophylactic effects for the relapsing-remitting phase. The full mode of action for T20K is still unknown, but my work provided evidence that it uses a 14-3-3 protein /Foxo3a dependent mechanism [10] or other cytosolic proteins in T-cells since the peptide rapidly accumulates in cells [23]. Molecular mechanism were studied in human T-cells as well as cancer cell lines, such as lymphoma [24]. Additionally, I investigate the prolyl oligopeptidase (POP)/PP2A signal pathway in respect to the antiproliferative effects of cyclic cystine-rich peptides [5, 22]. For example, my research group designs and synthesizes bioactive probes and for bioassay toward T-cell modulation. We aim to identify new candidates for further drug development and for application in disease models, such as MS [26].

Cyclic cystine-rich peptides as human protease inhibitors. Previously I reported the discovery and initial characterization of the first cyclic cystine-rich peptide inhibitor (psysol 2) of the human POP [5]. My research group established that these nature-derived peptides are prototypic inhibitors this protease [14, 22]. We can show that psysol 2 uses a non-competitive mode of inhibition. This MOA seems of interest because of: i) the fact that the majority of small molecule POP inhibitors are competitive or tight binding inhibitors and ii) that macrocyclic inhibitors have a high likeness to influence protein conformation or to modulate conformational equilibrium of proteins. These findings led us to the hypothesis that CCK peptides might be a good research tool to investigate the interplay of POP and α-synuclein interaction. POP is a possible drug target for a disease-modifying therapy in synucleinopathies, such as Parkinson's Disease, since POP inhibitors were shown to modify the protease–α-synuclein interaction reducing α-synuclein aggregation and the disease pathology. In a related project, prolyl oligopeptidases in Leishmania or Trypanosoma sp. are explored as drug targets since inhibition of these enzymes reduce proliferation, host cell invasion and survival of the parasites. My research interest also comprises the discovery of novel peptide inhibitors for other (related) proteases (e.g. human neurolysin, DPP-IV, FAPα, neprilysin, etc.) as well as their chemical characterization and bioactivity testing [16, 18, 20,].

Miscellaneous chemical and biological peptide sciences. I have strong interest in studying novel natural peptides in several aspects [25]. My research group has published substantial work in peptide discovery from natural sources, e.g. we applied high through-put analysis methods combining database search and mass spectrometry [2, 6, 12] or bioactivity guided isolation [7, 12, 17, 20] to identify novel peptides. My group also runs a proteomics facility with LC-MS and MALDI-TOF/TOF-MS and molecular imaging MS instruments, which we used to investigate proteomes or metabolomes in several

projects [11, 13, 15, 21].

Peptide drug development for human disease therapy. I am coordinator of the PeptAIDes project, a consortia of scientists from three universities who aim to develop peptide therapeutics for autoimmune and inflammatory diseases. My research group works on the development of promising peptidic drug candidates for therapy of autoimmune (e.g. Multiple Sclerosis), inflammatory (e.g. Morbus Crohn) and neurodegenerative diseases (e.g. alpha-synucleinopathies). The team combines multidisciplinary knowledge in peptide design and synthesis including computational rational design, peptide pharmacology, pre-clinical bioactivity testing, BBB transport, cell immunology and translational medicine for the selected disease fields. Our mission is to develop promising candidates to drug leads which will be sufficiently characterized in pre-clinical studies to make these compounds interesting for clinical development or to attract attention of the pharmaceutical sector to our technology.

ACADEMIC QUALIFICATION

2012-2016. Doctor of Philosophy (Ph.D.): N094 doctoral program "Molecular Signal Transduction" at the Medical University of Vienna, Center for Pharmacology and Physiology. "*Bioactive Circular Cystine-rich Peptides: Discovery, Characterization and Application in Target Identification for Drug Discovery*" (Assoc.-Prof. Priv.-Doz. Dr. Christian W. Gruber (BAppSc, PhD)), Graduation date 23.06.2016.

2010-2012. Master of Science (M.Sc.): Chemistry
University of Vienna, "*Enantioselective Separation of Fluorescence Tagged Amino Acids using Chiral Anion Exchangers*" (Univ. Prof. em. Dr. Wolfgang Lindner)

2007-2010. Bachelor of Science in Applied Natural Science (B.Sc.).
Austrian Biotech University of Applied Sciences, "*Simultane Bestimmung von 231 Pflanzenschutzmitteln in Lebensmitteln Hochleistungsflüssigchromatographie - Tandem Massenspektrometrie*" (Dr. Céline Lesueur and Prof. Dr. Justyna Rechthaler)

ACADEMIC CAREER

Current position 03/2018–to date: University Assistant/Post-Doc
Center for Pharmacology and Physiology of the Medical University of Vienna. Institute of Pharmacology, assoc. with the MS Core Facility and the lab for Drug Discovery and Peptidomics

07/2016–03/2018: Post-Doctoral Scientist
Center for Analytical Chemistry at Department for Agrobiotechnology, University of Natural Resources and Life Sciences (BOKU), Vienna. BiMM–Bioactive Microbial Metabolites project

RECRUITED RESEARCH FUNDS AND MOBILITIES

Total amount awarded: € 2.77 Mil.

FWF Zukunftskolleg (Young independent research groups)
Title 'PeptAIDes – '*Peptides Therapeutics for Autoimmune and Inflammatory Diseases'* role coordinator and PI, granted sum € 2.321.572,34; Duration 2020-2025.
OeAD International Fellowship
Awarded to Olivier Eteme N`Dogo for the period 2019/20, Sum €10,450,-
The fellowship has been recruited under my auspice and the scientist was hosted in the laboratory of Dr. Christian Gruber.
ERASMUS+ Staff Mobility €3850,-
PREP laboratory, head: Aj.-Prof Timo T. Myöhänen (University of Eastern Finland) Kuopio, Finland
FWF Stand Alone project
Title '*Psysol 2 als neuartiges Modulator für Prolyl Oligopeptidase*'; role PI, granted sum €422.324,88; duration 2023-27.

POST-GRADUATE EDUCATION

2016. Thermo Scientific Training Certificates for Metabolomics and Proteomics Individual Operator Training for an Orbitrap-HF mass spectrometers

2014. Quality Control and Quality Assurance in the Chemical Laboratory, Montanuniversität Leoben. **Passed with distinction.**

2013. Bruker Daltonics Training Certificates for the ESI-(Q)-TOF mass spectrometers Individual Operator Training.

2013. University Course, Pharmaceutical Bioinformatics, University of Uppsala, 7.5 ECTS credits

2012. EuPA course, Basic Mass Spectrometry for Proteomics, Biomedical Center University of Lund, Sweden.

SCIENTIFIC RECOGNITION (SELECTED)

- Selected virtual Poster Presentation at the 16th Peptide Therapeutics Symposium, San Diego, United States.
- Poster Presentation at the 38th Winter School on "Proteases and their Inhibitors" 2021 and as best speaker of the poster session nomination as the Young Investigator Award.
- **Oral presentation** at the 35th European Peptide Symposium, Dublin, Ireland 2018
- Oral presentation at the 6th Austrian Peptide Symposium, Vienna 2016
- **Oral and poster** presentation at the 3rd International Conference on Circular Proteins, Moreton Island, Australia 2015
- **Oral and poster** presentation at the 11th Australian Peptide Conference, Kingscliff, Australia 2015
- Poster presentation at the International Conference "Natural Products and Drug Discovery – Future Perspectives", Vienna, 2014, **Awarded with the 2nd Poster Price**
- Poster presentation at the 4th Austrian Peptide Symposium, Salzburg 2014. **Awarded with the Best Poster Presentation**
- Oral contribution at the annual Austrian Pharmacologist Meeting, Innsbruck 2014
- Oral contribution at the 33rd European Peptide Symposium, Sofia, Bulgaria 2014
- Oral contribution at the 3rd Austrian Peptide Symposium, Graz 2013
- Poster presentation at the 19th Australian Peptide Congress, Penang 2013
- Oral contribution at the annual Austrian Pharmacologist Meeting, Vienna 2013
- Oral contribution at the 9th Young Scientist Association PhD Symposia, Vienna 2013
- Poster presentation at the 14th Tetrahedron Symposium, Vienna 2013

ACHIEVEMENTS AND HONOURS

- **Junganalytikerpreis 2016** awarded by the Austrian Society for Analytical Chemistry (ASAC)
- **Best Poster Presentation** at the 4th Austrian Peptide Symposium, Salzburg 2014.
- **Best Poster Presentation** at the International Natural Products and Drug Discovery – Future Perspective Symposium, Vienna, 2014.
- **Förderpreis für Chemie 2013** for the Diploma Thesis "*Enantioselective Separation of Fluorescence Tagged Amino Acids using Chiral Anion Exchangers*" donated by the Austrian Chemical Society.
- Merit scholarship 2008 provided by the Austrian Biotech University of Applied Sciences, Tulln.
- TOP student bursary 2008 funded by Land Niederösterreich

TEACHING ACTIVITY

Cumulative teaching activities by semester hours: >29

N202, Diploma Study Human Medicine:

- 801.004 The Human Body: Oral examinations, Block 2
- 802.001 Functional Systems and Biological Regulation": Physiological Seminars, Block 4
- 803.005 Diseases, Manifestation, Perception and General Pharmaceutical Intervention & Therapy: Pharmacological Seminars & Practical Course, Block 9
- 804.001 Endocrinology and Metabolism: Pharmacological Seminars, Block 10
- 804.003 Heart, Circulation, Blood and Vasculature: Pharmacological Seminars, Block 11
- 808.004 SSM3 Project Study with follow-up Diploma Study

SUPERVISION OF STUDENTS

Doctoral studies: 2 ongoing
Jasmin Gattringer, MSc, Medical University of Vienna, Inst. of Pharmacology, 'Peptide modulators of cell migration' 10/2020 -to date.
Paula Schwarz, MSc, Medical University of Vienna, Inst. of Pharmacology, 'Design and application of peptide BBB shuttles to treat autoimmune diseases' 10/2021 -to date.

Oliver N'Dogo Eteme (University of Yaoundé, Kamerun); visiting PhD student for 9 month

Master and Diploma studies: 1 (finished), 2 (ongoing)
Agnes Weidman Medical University of Vienna, 'Cell migration is a druggable mechanism to halt autoimmune and inflammatory diseases', 2023-to date.
Maximilian Böhm, Medical University of Vienna, 'Targeting the prolyl oligopeptidase – PP2A axis with T-lymphocyte antiproliferative cyclic cystine-rich peptides', 2021-todate.
Carina Ebermann, Austrian Biotech University of Applied Sciences, 'Natural peptide inhibitor of human prolyl oligopeptidase', graduated 2019.
Co-supervision of several Master and Diploma studies as post-doctoral fellow.

PROFESSIONAL MEMPERSHIPS

Member of the Society of Austrian Chemists (GÖCH) (2006-2023)
Member of the European Peptide Society (EPS) and of the Austrian Peptide Society
Member of the Austrian Society of Analytical Chemistry (ASAC) (2006-2023)
Member of the Austrian Pharmacologist Society (APhar)

PEER REVIEW ACTIVITIES

Journal of Natural Products
Journal of Antimicrobial Research
Journal of Food Chemistry
Scientific Reports
ACS Chemical Biology
Toxins, Nutrients, Biomedicines (MDPI Journal)
Communication Biology
Biological Journal
Phytochemistry
Frontiers in Pharmacology; -in Chemistry

NATIONAL AND INTERNATIONAL COOPERATIONS

Univ.-Prof. Dr. Ulf Göransson, University of Uppsala, Department for Medicinal Chemistry, Pharmacognosy/Peptide Chemical Biology
Univ.-Prof. Dr. Christian F.W. Becker, University of Vienna, Faculty for Chemistry, Institute for Chemical Biology
Dr. Richard Clark, Senior Research Fellow, University of Queensland, School of Biomedical Sciences
Dr. Johan Rosengren, Senior Research Fellow, University of Queensland, School of Biomedical Sciences
Univ.-Prof. Dr. Ernest Giralt, University of Barcelona, Institute of Research in Biomedicine
Dr. Daniel Kümmel from the Institute of Biochemistry of the WWU Münster
Dr. Jozef Vanden Broeck, KU Leuven, Animal Physiology and Neurobiology.
Dr.med.univ. Johannes Kovarik, PhD, Medizinische Universität Wien, Universitätsklinik für Innere Medizin III, Klinische Abteilung für Nephrologie und Dialyse.
Dr. Ivan Campeotto, Nottingham Trent University, School of Science & Technology.
Univ.-Prof. Dr. Timo T. Myöhänen, University of Eastern Finland (Kuopio), Professor of Pharmacology and Drug Development.
Univ.Prof. (em.) Margareta Hammarlund-Udenaes, University of Uppsala, Department of Pharmacy, Translational PKPD

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ORCID 0000-0002-8955-8793 | Research ID D-3050-2018 | GoogleScholar

In total (2013-2023) I have published/contributed to 26 peer-reviewed research articles (4 review, 22 original research articles) with an average **citation per paper of 31 (h-index 13)** and **the total number citations is 825** (source: GoogleScholar, 22/03/2023).

Note: *First, corresponding or last authorships are marked in boldface, other authorships are underlined; equal contributions are indicated with an asterisk; impact factors (IF) taken from Web of Science (year before publication date or date IF), and no. of citations taken from GoogleScholar, respectively.*

PUBLICATION LIST

[26] Gattringer J., Gruber CW. and **Hellinger R.** *Peptide modulators of cell migration: overview, applications and future development*. 2023, Drug Disc Tod., *13:103554.* doi: *10.1016/j.drudis.2023.103554. Epub ahead of print. PMID: 36921670.* Review Article [**IF 8.3**]

[25] **Hellinger R.,** * Sigurdsson A., Wu W., Romanova EV., Li L., Sweedler JV., Süssmuth RD., Gruber CW. *Peptidomics*. 2023. Nature Reviews Methods Primers. *accepted review article.* Review Article

[24] Lind J, Hellinger R, Kudweis P, Moll HP, Gattringer J, Thell K, Edtmayer S, Gruber CW, Stoiber D, and Kollmann K. *The nature inspired peptide [T20K]-kalata B1 induces anti-tumor effects in anaplastic large cell lymphoma.* 2022. Biomed Pharmacother.,153:113486. doi: 10.1016/j.biopha.2022.113486. [IF 7.4, **Top 10%** in Pharmacology and Pharmacy]

[23] **Hellinger R.,** Muratspahić E., Devi S., Koehbach J., Vasileva M., Harvey PJ., Craik DJ., Gründemann C., and Gruber CW. *Importance of the cyclic cystine knot structural motif for immunosuppressive effects of cyclotides,* 2021, ACS Chem Bio, 16(11):2373-2386. doi: 10.1021/acschembio.1c00524. [**IF 4.6; Q1 in Biochemistry & Molecular Medicine**].

[22] Gattringer J., Ndogo EO., Retzl B., Ebermann C., Gruber CW., **Hellinger R.,** *Cyclotides isolated from violet plants of Cameroon are inhibitors of human prolyl oligopeptidase,* 2021, Front Pharmacol, 12:1737, doi: 10.3389/fphar.2021.707596 [**IF 5.9; Q1/ TOP20% in Pharmacology**].

[21] Ercan H., Mauracher LM., Grilz E., Hell L., Hellinger R., Schmid JA., Moik F., Ay C., Pabinger I., Zellner M., *Alterations of the Platelet Proteome in Lung Cancer: Accelerated F13A1 and ER Processing as New Actors in Hypercoagulability,* 2021, Cancers (Basel), 8;13(9):2260. doi: 10.3390/cancers13092260. [**IF 6.6; Q1 in Oncology**].

[20] Aoki-Shioi N., Terada S., Hellinger R., Furuta Y., Gruber CW., *Isolation and functional diversity of Bowman–Birk type serine proteinase inhibitors from Hyacinthus orientalis,* 2021, Biochem. J, 478(6):1287-1301; doi.org/10.1042/BCJ20201005. [**IF 3.7; Q1 in Biochem., Cell biol., and Mol. Bio.,**].

[19] Dekan Z.,* Kremsmayr T.,* Keov P., Godin M., Teakle N., Durrauer L., Xiang H., Gharib D., Bergmayr C., Hellinger R., Gay M., Vilaseca M., Kurzbach D., Albericio F., Alewood AF., Gruber CW.,# and Muttenthaler M.,# *Nature-inspired dimerization as a strategy to modulate neuropeptide pharmacology exemplified with vasopressin and oxytocin*, 2021, Chem. Sci., 12:4057-4062. doi: 10.1039/d0sc05501h. *equal contributions. [**IF 9.3; Q1 in Chemical engineering and Top20% in Chemistry (miscellaneous)**].

[18] Retzl B., Hellinger R., Muratspahic E., Pinto M., Bolzani V., Gruber CW., *Discovery of a beetroot protease inhibitor to identify and classify plant-derived cystine knot peptides*, 2020, J Nat Prod, 83(11): 3305–3314. doi.org/10.1021/acs.jnatprod.0c00648 [IF 4.1; **Top 10% Plant Sciences**, Top 20% Medicinal Chemistry, 12 citations].

[17] Shahin-Kaleybar B., Niazi A., Afsharifar A., Nematzadeh G., Yousefi R., Retzl B., Hellinger R., Muratspahić E., Gruber CW., *Isolation of Cysteine-Rich Peptides from Citrullus colocynthis*, 2020, Biomolecules, 10(9):E1326. doi: 10.3390/biom10091326. [**IF 4.7; Q1 in Biochemistry & Mol. Biology**].

[16] Kaltenecker CC., Domenig O., Kopecky C., Antlanger M., Poglitsch M., Berlakovich G., Kain R., Stegbauer J., Rahman M., Hellinger R., Gruber C., Grobe N., Fajkovic H., Eskandary FA., Böhmig GA., Säemann MD., Kovarik JJ., 2020, *Critical Role of Neprilysin in Kidney Angiotensin Metabolism*, Circ.

Res.,127:593–606 doi: 10.1161/CIRCRESAHA.119.316151. [**IF 23.2; Q1 in Physiology and Cardiology and Cardiovascular Medicine,** 12 citations]**.**

[15] Svoboda T., Parich A., Güldener U., Schöfbeck D., Twaruschek K., Václavíková M., Hellinger R., Wiesenberger G., Schuhmacher R., Adam G., Biochemical characterization of the Fusarium graminearum candidate ACC-deaminases and virulence testing of knockout mutant strains. 2019. Front. Plant Sci., 10:1072, doi: 10.3389/fpls.2019.01072 [**IF 6.6, Q1** in Plant Sciences, 7 citations]

[14] **Hellinger R.** and Gruber CW., *Peptide-based protease inhibitors from plants*. Drug Discov Today. 2019. 24(9): 1877-1889. doi: 10.1016/j.drudis.2019.05.026. [**IF 8.3; Q1** Pharmacology and Pharmacy, **73 citations**] Review Article

[13] Stadler D., Lambertini F., Bueschl C., Wiessenberger G., Hametner C., Schwartz-Zimmermann H., Hellinger R., Sulyok M., Lemmens M., Schuhmacher R., Suman M., Berthiller F., Krska R., *Untargeted LC–MS based 13C labelling provides a full mass balance of deoxynivalenol and its degradation products formed during baking of crackers, biscuits and bread,* 2018, Food Chem., 279:303-311, doi.org/10.1016/j.foodchem.2018.11.150, [**IF 9.2; TOP 10% in** Food Science & Technology and Applied Chemistry, **23 citations**]

[12] Keov P., Liutkevičiūtė Z., Hellinger R., Clark RJ., Gruber CW. *Discovery of peptide probes to modulate oxytocin-type receptors of insects*, Scientific Reports. 2018, 8: 10020. doi: 10.1038/s41598-018-28380-3. [**IF 4.9; Q1 Top 10 %** multidisciplinary journal, **10 citation**]

[11] Labuda R., Bernreiter A., Schüller C., Kubátová A., Hellinger R., Strauss J. *Metapochonia lutea, a new species isolated from the Danube river in Austria*, Nova Hedwigia. 2018, 106 (3-4):3-4. https://doi.org/10.1127/nova_hedwigia/2018/0487. [IF 0.9; Q3 Agricultural and Biological Sciences]

[10] **Hellinger R.,** Thell K., Vasileva M., Liutkevičiūte Z., Muhammad T., Gunasekera S., Kümmel D., Becker CF., Göransson U., Becker CFW., Gruber CW. *Chemical Proteomics for Target Discovery of Head-to-Tail Cyclized Mini-Proteins*, Front. Chem. 2017, 5:73. doi: 10.3389/fchem.2017.00073. [IF 5.5; Q2 Chemistry (multidisciplinary), **7 citations**]

[9] Zutz C., Chiang YM., Faehnrich B., Bacher M., Hellinger R., Kluger B., Wagner M., Strauss J., Rychli K. *Butyrate influences intracellular levels of adenine and adenine derivatives in the fungus Penicillium restrictum*, Microbiological research, 2017, 197:1-8. doi: 10.1016/j.micres.2016.12.013. [IF 3.0; Q2 Microbiology]

[8] Thell K., Hellinger R., Sahin E., Michenthaler P., Gold-Binder M., Haider T., Kuttke M., Liutkevičiūtė Z., Göransson U., Gründemann C., Schabbauer G., Gruber CW. *Oral activity of a nature-derived cyclic peptide for the treatment of multiple sclerosis,* PNAS, 2016. 113(15): 3960-3965. doi: 10.1073/pnas.1519960113. [**IF 12.8**, **Top 10%** Multidisciplinary Sciences, **121 citations**]

[7] **Hellinger R.,*** Attah AF.,* Sonibare MA., Moody JO., Arrowsmith S., Wray S., Gruber CW. *Ethnobotanical survey of Rinorea dentata (Violaceae) used in South-Western Nigerian ethnomedicine and detection of cyclotides,* J Ethnopharmacol., 2016, 179 (1): 83-91. doi: 10.1016/j.jep.2015.12.038. [**IF 5.2; No. 4/Top 15%,** Integrative & Complementary Medicine, **28 citations**]

[6] **Hellinger R.,*** Koehbach J.,* Soltis DE., Carpenter EJ., Wong GK., Gruber CW. *Peptidomics of Circular Cystine-rich Plant Peptides: Analysis of the Diversity of Cyclotides from Viola tricolor by Transcriptome and Proteome Mining.* J Proteome Res. 2015, 14 (11):4851-4862. doi:10.1021/acs.jproteome.5b00681. [**IF 5.3**, Top 20% Biochemical Research Methods, **86 citations**]

[5] **Hellinger R.,*** Koehbach J.,* Puigpinós A., Clark RJ., Tarrago T., Giralt E. and Gruber CW. *Inhibition of Human Prolyl Oligopeptidase Activity by the Cyclotide Psysol 2 Isolated from Psychotria solitudinum*. J Nat Prod. 2015, 78 (5):1073-1082. doi: 10.1021/np501061. [**IF 4.8**; **Top 7%** Plant Sciences, **Top 16% Pharmacology & Pharmacy, 49 citations**]

[4] **Hellinger R.,*** Koehbach J.,* Halyna F., Sauer B., Huber R., Gruber CW., Gründemann, C., *Immunosuppressive activity of an aqueous Viola tricolor herbal extract.* J Ethnopharmacol. 2014, 151 (1):299-306. doi: 10.1016/j.jep.2013.10.044 [**IF 5.2; No. 4, Top 15%,** Integrative & Complementary Medicine, **92 citations**]

[3] **Hellinger R.,*** Thell K.,* Schabbauer G., Gruber CW. *Immunosuppressive peptides and their pharmaceutical application.* Drug Discov Today, 2014. 19 (5):646-653. doi: 10.1016/j.drudis.2013.12.002. [**IF 8.3**; **Top 5%** Pharmacology & Pharmacy, **90 citations**] Review Article

[2] Koehbach J., Attah AF., Berger A., Hellinger R., Kutchan T., Carpenter E., Rolf M., Sonibare MA., Moody, JO., Wong GK., Dessein S., Greger H., Gruber CW. *Cyclotide discovery in Gentianales revisited – Identification and characterization of cyclic cystine knotted peptides and their phylogenetic distribution in*

Rubiaceae plants. Peptide Science: Biopolymers, 2013, 100 (5):438-452. doi: 10.1002/bip.22328. [IF 2.9; Q3 Biochemistry & Molecular Biology, **106 citations**]

[1] **Hellinger R.,** Horak J., Lindner W. *Enantioseparation of 6-aminoquinolyl-N-hydroxysuccinimidyl carbamate tagged amino acids and other zwitterionic compounds on cinchona based chiral stationary phases*. Analytical Bioanalytical Chemistry, 2013. 405 (25):8105-8120. doi: 10.1007/s00216-013-7121-9. [IF 4.4; **Q1** Analytical Chemistry, **21 citations**]