

Publications

- Suma H, Stallforth P[#] (2025) Pleiotropic regulation of bacterial toxin production and Allee effect govern microbial predator–prey interactions. *ISME COMMUN* 5(1), ycaf031.
- Wasmuth I, Warinner C[#], Stallforth P[#] (2025) Microbial dynamics and *Pseudomonas* natural product production in milk and dairy products. *Nat Prod Rep* [Epub ahead of print] (Review)
- Zhang S, Huang Y, Nachawati R, Huber P, Walther G, Vilotijević I, Stallforth P[#] (2025) Pangenome analysis of the plant pathogen *Pseudomonas syringae* reveals unique natural products for niche adaptation. *Angew Chem Int Ed* [Epub ahead of print]
- Zhang S, Schlabach K, Pérez Carrillo VH, Ibrahim A, Nayem S, Komor A, Mukherji R, Chowdhury S, Reimer L, Trottmann F, Vlot AC, Hertweck C, Hellmich UA, Stallforth P (2025) A chemical radar allows bacteria to detect and kill predators. *Cell* S0092-8674(25), 00269-7.
- Bergström A, Fellows Yates JA, Warinner C (2024) Ancient DNA data hold insights into past organisms and ecosystems - handle them with more care. *Nature* 636(8042), 296-298.
- Borry M, Forsythe A, Andrades Valtueña A, Hübner A, Ibrahim A, Quagliariello A, White AE, Kocher A, Vågane ÅJ, Bartholdy BP, Spurite D, Ponce-Soto GY, Neumann G, Huang IT, Light I, Velsko IM, Jackson I, Frangenberg J, Serrano JG, Fumey J, Özdoğan KT, Blevins KE, Daly KG, Lopopolo M, Moraitou M, Michel M, van Os M, Bravo-Lopez MJ, Sarhan MS, Dagtas ND, Oskolkov N, Smith OS, Lebrasseur O, Rozwalak P, Eisenhofer R, Wasef S, Ramachandran SL, Vanghi V, Warinner C, Fellows Yates JA (2024) Facilitating accessible, rapid, and appropriate processing of ancient metagenomic data with AMDirT. *F1000Res* 12, 926.
- Janevska S^{*#}, Weiser S^{*}, Huang Y, Lin J, Hoefgen S, Jojić K, Barber AE, Schäfer T, Fricke J, Hoffmeister D, Regestein L, Valiante V, Kufs JE[#] (2024) Optimized psilocybin production in tryptophan catabolism-repressed fungi. *Microb Biotechnol* 17(11), e70039.
- Klapper M, Ramm M, Stallforth P (2024) Naturstoffe aus der Vergangenheit. *BIOspektrum* 30, 744-746. (Review)
- Klapper M, Stallforth P (2024) Accessing microbial natural products of the past. *Microlife* 5, uqae023. (Review)
- Zdouc M, Blin K, Louwen NLL, ..., Hemmann JL, Klapper M, ..., Weber T, Medema M (2024) MIBiG 4.0: Advancing biosynthetic gene cluster curation through global collaboration. *Nucleic Acids Res* 53(D1), D678-D690.
- Zhang S, Stallforth P (2024) Biofilms and exopolysaccharides in *Pseudomonas aeruginosa*: pathogenesis, immune evasion, and lung–brain signaling during pneumonia. *Signal Transduc Target Ther* 9(1), 204. (Review)
- Götze S, Vij R, Burow K, Thome N, Urvat L, Schlosser N, Pflanze S, Müller R, Hänsch VG, Schlabach K, Fazlikhani L, Walther G, Dahse HM, Regestein L, Brunke S, Hube B, Hertweck C, Franken P, Stallforth P (2023) Ecological niche-inspired genome mining leads to the discovery of crop-protecting nonribosomal lipopeptides featuring a transient amino acid building block. *J Am Chem Soc* 145(4), 2342-2353.

- Klapper M^{*}, Hübner A^{*}, Ibrahim A^{*}, Wasmuth I, Borry M, Haensch VG, Zhang S, Al-Jammal WK, Suma H, Fellows Yates JA, Frangenberg J, Velsko IM, Chowdhury S, Herbst R, Bratovanov EV, Dahse HM, Horch T, Hertweck C, González Morales MR, Straus LG, Vilotijevic I, Warinner C, Stallforth P (2023) Natural products from reconstructed bacterial genomes of the Middle and Upper paleolithic. *Science* 380(6645), 619-624.
- Pflanze S, Mukherji R, Ibrahim A, Günther M, Götze S, Chowdhury S, Reimer L, Regestein L, Stallforth P (2023) Nonribosomal peptides protect *Pseudomonas nunensis* 4A2e from amoebal and nematodal predation. *Chem Sci* 14(41), 11573-11581.
- Seibold PS, Lawrinowitz S, Raztsou I, Gressler M, Arndt HD, Stallforth P, Hoffmeister D (2023) Bifurcate evolution of quinone synthetases in basidiomycetes. *Fungal Biol Biotechnol* 10(1), 14.
- Stallforth P^{*}, Mittag M, Brakhage AA, Hertweck C, Hellmich UA^{*} (2023) Functional modulation of chemical mediators in microbial communities. *Trends Biochem Sci* 48(1), 71-81. (Review)
- Bando Y, Hou Y, Seyfarth L, Probst J, Götze S, Bogacz M, Hellmich UA, Stallforth P, Mittag M, Arndt HD^{*} (2022) Total synthesis and structure correction of the cyclic lipodepsipeptide orfamide A. *Chemistry* 28(20), e202104417.
- Declas N, Maynard JRJ, Menin L, Gasilova N, Götze S, Sprague JL, Stallforth P, Matile S, Waser J^{*} (2022) Tyrosine bioconjugation with hypervalent iodine. *Chem Sci* 13(43), 12808-12817.
- Günther M^{*}, Reimer C^{*}, Herbst R^{*}, Kufs JE, Rautschek J, Ueberschaar N, Zhang S, Peschel G, Reimer L, Regestein L, Valiante V, Hillmann F[#], Stallforth P[#] (2022) Yellow polyketide pigment suppresses premature hatching in social amoeba. *Proc Natl Acad Sci U S A* 119(43), e2116122119.
- Kufs JE, Reimer C, Stallforth P, Hillmann F, Regestein L^{*} (2022) The potential of amoeba-based processes for natural product syntheses. *Curr Opin Biotechnol* 77, 102766. (Review)
- Moraitou M, Forsythe A, Fellows Yates JA, Brealey JC, Warinner C, Guschanski K (2022) Ecology, not host phylogeny, shapes the oral microbiome in closely related species. *Mol Biol Evol* 39(12), msac263.
- Baunach M, Chowdhury S, Stallforth P, Dittmann E (2021) The landscape of recombination events that create nonribosomal peptide diversity. *Mol Biol Evol* 38(5), 2116-2130.
- Nasufović V, Küllmer F, Bößneck J, Dahse HM, Görls H, Bellstedt P, Stallforth P, Arndt HD (2021) Total synthesis and bioactivity mapping of geodiamolide H. *Chem Eur J* 27(45), 11633-11642.
- Zhang S, Mukherji R, Chowdhury S, Reimer L, Stallforth P (2021) Lipopeptide-mediated bacterial interaction enables cooperative predator defense. *Proc Natl Acad Sci U S A* 118(6), e2013759118.
- Goetze S, Stallforth P (2020) Structure elucidation of bacterial nonribosomal lipopeptides. *Org Biomol Chem* 18(9), 1710-1727. (Review)
- Götze S, Stallforth P (2020) Structure, properties, and biological functions of nonribosomal lipopeptides from pseudomonads. *Nat Prod Rep* 37(1), 29-54. (Review)
- Klapper M, Schlabach K, Paschold A, Zhang S, Chowdhury S, Menzel KD, Rosenbaum MA,

- Stallforth P (2020) Biosynthesis of *pseudomonas*-derived butenolides. *Angew Chem Int Ed* 59(14), 5607-5610.
- Mukherji R, Zhang S, Chowdhury S, Stallforth P (2020) Chimeric LuxR transcription factors rewire natural product regulation. *Angew Chem Int Ed* 59(15), 6192-6195.
- Seyedsayamdost M, Stallforth P (2020) Special issue in honor of Professor Jon Clardy. *J Nat Prod* 83(3), 565-568. (Review)
- Stallforth P (2020) Cellular microbiology interview - Dr. Pierre Stallforth. *Cell Microbiol* 22(5), e13188. (Review)
- Fischer D, Gessner G, Fill TP, Barnett R, Tron K, Dornblut K, Kloss F, Stallforth P, Hube B, Heinemann SH, Hertweck C, Scherlach K, Brunke S (2019) Disruption of membrane integrity by the bacteria-derived antifungal jagaricin. *Antimicrob Agents Chemother* 63(9), e00707-19.
- Götze S, Arp J, Lackner G, Zhang S, Kries H, Klapper M, García-Altare M, Willing K, Günther M, Stallforth P (2019) Structure elucidation of the syringafactin lipopeptides provides insight in the evolution of nonribosomal peptide synthetases. *Chem Sci* 10(48), 10979-10990.
- Herbst R, Günther M, Stallforth P (2019) Chemical Ecology of *Dictyostelium discoideum*. In: *Comprehensive Natural Products III Elsevier*. (Review)
- Klapper M, Paschold A, Zhang S, Weigel C, Dahse HM, Götze S, Pace S, König S, Rao Z, Reimer L, Werz O, Stallforth P (2019) Bioactivity and mode of action of bacterial tetramic acids. *ACS Chem Biol* 14(8), 1693-1697.
- Oberheide A, Pflanze S, Stallforth P, Arndt HD (2019) Solid-phase-based total synthesis and stereochemical assignment of the cryptic natural product aurantizolicin. *Org Lett* 21(3), 729-732.
- Arp J, Götze S, Mukherji R, Mattern DJ, Garcia-Altare M, Klapper M, Brock DA, Brakhage AA, Strassmann JE, Queller DC, Bardl B, Willing K, Peschel G, Stallforth P (2018) Synergistic activity of co-secreted natural products from amoebae-associated bacteria. *Proc Natl Acad Sci USA* 115(15), 3758-3763.
- Barnett R, Stallforth, P (2018) Natural products from social amoebae. *Chem Eur J* 24(17), 4202-4214. (Review)
- Broecker F, Götze S, Hudon J, Rathwell DCK, Pereira CL, Stallforth P, Anish C, Seeberger PH (2018) Synthesis, liposomal formulation, and immunological evaluation of a minimalistic carbohydrate- α -galCer vaccine candidate. *J Med Chem* 61(11), 4918-4927.
- Heinrich D, Barnett R, Tweedy L, Insall R, Stallforth P, Winckler T (2018) The chemoattractant glorin is inactivated by ester cleavage during multicellular development of the social amoeba *Polysphondylium pallidum*. *ACS Chem Biol* 13(6), 1506-1513.
- Klapper M, Arp J, Günther M, Stallforth P (2018) The role of bacterial natural products in predator defense. *Synlett* 29(5), 537-541. (Review)
- Klapper M, Braga D, Lackner G, Herbst R, Stallforth P (2018) Bacterial alkaloid biosynthesis: Structural diversity via a minimalistic nonribosomal peptide synthetase. *Cell Chem Biol* 25(6), 659-665.

Arp J, Stallforth P (2017) Rationalizing the Right Ratios. *Cell Chem Biol* 24(5), 539-541. (Review)

Barnett R, Raszkowski D, Winckler T, Stallforth P (2017) Versatile synthesis of the signaling peptide glorin *Beilstein J Org Chem* 13, 247-250.

Gallegos-Monterrosa R, Kankel S, Götze S, Barnett R, Stallforth P, Kovács ÁT (2017) *Lysinibacillus fusiformis* M5 induces increased complexity in *Bacillus subtilis* 168 colony biofilms via hypoxanthine. *J Bacteriol* 199(22), e00204-e00217.

Götze S, Herbst-Irmer R, Klapper M, Görls H, Schneider KRA, Barnett R, Burks T, Neu U, Stallforth P (2017) Structure, Biosynthesis, and Biological Activity of the Cyclic Lipopeptide Anikasin. *ACS Chem Biol* 12(10), 2498-2502.

Adibekian A, Stallforth P (2016) Cutting Edge Chemical Biology: Report from the 2016 International Symposium on Chemical Biology, January 13-15, Geneva, Switzerland. *ACS Chem Biol* 11(4), 816-820. (Review)

Klapper M, Götze S, Barnett R, Willing K, Stallforth P (2016) Bacterial alkaloids prevent amoebal predation. *Angew Chem Int Ed* 55(31), 8944-8947.

Braesel J, Götze S, Shah F, Heine D, Tauber J, Hertweck C, Tunlid A, Stallforth P, Hoffmeister D (2015) Three redundant synthetases secure redox-active pigment production in the basidiomycete *Paxillus involutus*. *Chem Biol* 22, 1325-1334.

Matthies S, Stallforth P, Seeberger PH (2015) Total Synthesis of Legionaminic Acid as Basis for Serological Studies *J Am Chem Soc* 137, 2848-2851.

Cavallari M, Stallforth P, Kalinichenko A, Rathwell DCK, Gronewold TMA, Adibekian A, Mori L, Landmann R, Seeberger PH, DeLibero G (2014) A semi-synthetic carbohydrate-lipid vaccine that protects against *S. pneumoniae* in mice *Nat Chem Biol* 10, 950-956.

Stallforth P, Clardy J (2014) Atlas for drug discovery. *Proc Natl Acad Sci U S A* 111(10), 3655-3656.

Stallforth P, Brock DA, Cantley AM, Tian X, Queller DC, Strassmann JE, Clardy J (2013) A bacterial symbiont is converted from an inedible producer of beneficial molecules into food by a single mutation in the *gacA* gene. *Proc Natl Acad Sci U S A* 110(36), 14528-14533.

Stallforth P, Clardy J (2013) X-ray crystallography: One size fits most. *Nature* 495(7442), 456-457.

Stallforth P, Clardy J (2012) Protein evolution: when two become three. *Curr Biol* 22(17), R685-R687.

Stallforth P, Matthies S, Adibekian A, Gillingham DG, Hilvert D, Seeberger PH (2012) De novo chemoenzymatic synthesis of sialic acid. *Chem Commun (Camb)* 48(98), 11987-11989.

Gillingham DG, Stallforth P, Adibekian A, Seeberger PH, Hilvert D (2010) Chemoenzymatic synthesis of differentially protected 3-deoxysugars. *Nat Chem* 2(2), 102-105.

Ohara T, Adibekian A, Esposito D, Stallforth P, Seeberger PH (2010) Towards the synthesis of a *Yersinia pestis* cell wall polysaccharide: enantioselective synthesis of an L-glycero-D-manno-

heptose building block. *Chem Commun (Camb)* 46(23), 4106-4108.

Pragani R, Stallforth P, Seeberger PH (2010) *De novo* synthesis of a 2-acetamido-4-amino-2,4,6-trideoxy-D-galactose (AAT) building block for the preparation of a *Bacteroides fragilis* A1 polysaccharide fragment. *Org Lett* 12(7), 1624-1627.

Hecht ML, Stallforth P, Silva DV, Adibekian A, Seeberger PH (2009) Recent advances in carbohydrate-based vaccines. *Curr Opin Chem Biol* 13(3), 354-359.

Stallforth P, Lepenies B, Adibekian A, Seeberger PH (2009) 2009 Claude S. Hudson Award in Carbohydrate Chemistry. Carbohydrates: a frontier in medicinal chemistry. *J Med Chem* 52(18), 5561-5577.

Stallforth P, Adibekian A, Seeberger PH (2008) *De novo* synthesis of a D-galacturonic acid thioglycoside as key to the total synthesis of a glycosphingolipid from *Sphingomonas yanoikuyae*. *Org Lett* 10(8), 1573-1576.

*equal contribution #corresponding author