

Selected Publications

- Michaelis, S., Chen, T., Schmid, C. & Hilbi, H. (2024) Nitric oxide signaling through three receptors regulates virulence, biofilm formation, and phenotypic heterogeneity of *Legionella pneumophila*. *mBio*: accepted.
- Michaelis, S., Gomez-Valero, L., Chen, T., Schmid, C., Buchrieser, C. & Hilbi, H. (2024) Small molecule communication of *Legionella*: the ins and outs of autoinducer and nitric oxide signaling. *Microbiol. Mol. Biol. Rev.*: submitted (invited review).
- Hüsler, D., Stauffer, P., Keller, B., Böck, D., Steiner, T., Ostrzinski, A., Vormittag, S., Striednig, B., Swart, A. L., Letourneur, F., Maass, S., Becher, D., Eisenreich, W., Pilhofer, M. & Hilbi, H. (2023) The large GTPase Sey1/atlastin mediates lipid droplet- and FadL-dependent intracellular fatty acid metabolism of *Legionella pneumophila*. *eLife* 12: e85142.
- Fan, M., Kiefer, P., Charki, P., Hedberg, C., Seibel, J., Vorholt, J.A. & Hilbi, H. (2023) The *Legionella* autoinducer LAI-1 is delivered by outer membrane vesicles to promote inter-bacterial and inter-kingdom signaling. *J. Biol. Chem.* 299: 105376.
- Vormittag, S., Hüsler, D., Haneburger, I., Kroniger, T., Anand, A., Prantl, M., Barisch, C., Maaß, S., Becher, D., Letourneur, F. & Hilbi, H. (2023) *Legionella*- and host-driven lipid flux at LCV-ER membrane contact sites promotes vacuole remodeling. *EMBO Rep.* 24: e56007.
- Hüsler, D., Stauffer, P. & Hilbi, H. (2023) Tapping lipid droplets: A rich fat diet of intracellular bacterial pathogens. *Mol. Microbiol.* 120: 194–209.
- Vormittag, S., Ende, R.J., Derré, I. & Hilbi, H. (2023) Pathogen vacuole membrane contact sites – close encounters of the fifth kind. *µLife* 4: uqad018.
- Hochstrasser, R., Brülisauer, S., Michaelis, S., Sura, T., Fan, M., Maaß, S., Becher, D. & Hilbi, H. (2022) Migration of *Acanthamoeba* through *Legionella* biofilms is regulated by bacterial quorum sensing, effector proteins and the flagellum. *Environ. Microbiol.* 24: 3672-3692.
- Hilbi, H. & Buchrieser, C. (2022) *Legionella pneumophila* - a copycat eukaryote. *Microbiology* 168: doi: 10.1099/mic.0.001142.
- Striednig, B. & Hilbi, H. (2022) Bacterial quorum sensing and phenotypic heterogeneity: how the collective shapes the individual. *Trends Microbiol.* 30: 379-389.
- Böck, D., Hüsler, D., Steiner, B., Medeiros, J. M., Welin, A., Radomska, K. A., Hardt, W.-D., Pilhofer, M. & Hilbi, H. (2021) The polar *Legionella* Icm/Dot T4SS establishes distinct contact sites with the pathogen vacuole membrane. *mBio* 12: e02180-21.

- Striednig, B., Lanner, U., Niggli, S., Katic, A., Vormittag, S., Brülisauer, S., Hochstrasser, R., Kaech, A., Welin, A., Flieger, A., Ziegler, U., Schmidt, A., Hilbi, H. & Personnic, N. (2021) Quorum sensing governs a transmissive *Legionella* subpopulation at the pathogen vacuole periphery. *EMBO Rep.* 22: e52972.
- Hüsler, D., Steiner, B., Welin, A., Striednig, B., Swart, A. L., Molle, V., Hilbi, H. & Letourneur, F. (2021) *Dictyostelium* lacking the single atlastin homolog Sey1 shows aberrant ER architecture, proteolytic processes, and expansion of the *Legionella*-containing vacuole. *Cell. Microbiol.* 23: e13318.
- Personnic, N., Striednig, B. & Hilbi, H. (2021) Quorum sensing controls persistence, resuscitation and virulence of *Legionella* subpopulations in biofilms. *ISME J.* 15: 196-210.
- Swart, A. L., Steiner, B., Schütz, S., Gomez-Valero, L., Hannemann, M., Janning, P., Irminger, M., Rothmeier, E., Buchrieser, C., Itzen, A., Panse, V. G. & Hilbi, H. (2020) Divergent evolution of *Legionella* RCC1 repeat effectors defines the range of Ran GTPase cycle targets. *mBio* 11: e00405-20.
- Hochstrasser, R., Hutter, C. A. J., Arnold, F. A., Bärlocher, K., Seeger, M. A. & Hilbi, H. (2020) The structure of the *Legionella* response regulator LqsR reveals amino acids critical for phosphorylation and dimerization. *Mol. Microbiol.* 113: 1070-1084.
- Knobloch, P., Koliwer-Brandl, H., Arnold, F. M., Hanna, N., Gonda, I., Adenau, S., Personnic, N., Barisch, C., Seeger, M. A., Soldati, T. & Hilbi, H. (2020) *Mycobacterium marinum* produces distinct mycobactin and carboxymycobactin siderophores to promote growth in broth and phagocytes. *Cell. Microbiol.* 22: e13163.
- Swart, A. L., Gomez-Valero, L., Buchrieser, C. & Hilbi, H. (2020) Evolution and function of bacterial RCC1 repeat effectors. *Cell. Microbiol.* 22: e13246.
- Hochstrasser, R. & Hilbi, H. (2020) *Legionella* quorum sensing meets cyclic-di-GMP signaling. *Curr. Opin. Microbiol.* 55: 9-16.
- Personnic, N., Striednig, B., Lezan, E., Manske, C., Welin, A., Schmidt, A. & Hilbi, H. (2019) Quorum sensing modulates the formation of virulent *Legionella* persisters within infected cells. *Nat. Commun.* 10: 5216.
- Koliwer-Brandl, H., Knobloch, P., Barisch, C., Welin, A., Soldati, T. & Hilbi, H. (2019) Distinct *Mycobacterium marinum* lipid phosphatases determine pathogen vacuole phosphoinositide pattern, phagosome maturation and escape to the cytosol. *Cell. Microbiol.* 21: e13008.

- Hochstrasser, R., Kessler, A., Sahr, T., Simon, S., Schell, U., Gomez-Valero, L., Buchrieser, C. & Hilbi, H. (2019) The pleiotropic *Legionella* transcription factor LvbR links the Lqs and c-di-GMP regulatory networks to control biofilm architecture and virulence. *Environ. Microbiol.* 21: 1035-1053.
- Weber, S., Steiner, B., Welin, A., & Hilbi, H. (2018) *Legionella*-containing vacuoles capture PtdIns(4)P-rich vesicles derived from the Golgi apparatus. *mBio* 9: e02420-18.
- Personnic, N., Striednig, B. & Hilbi, H. (2018) *Legionella* quorum sensing and its role in host-pathogen interaction. *Curr. Opin. Microbiol.* 41: 29-35.
- Bärlocher, K., Hutter, C. A., Swart, A. L., Steiner, B., Welin, A., Hohl, M., Letourneur, F., Seeger, M. & Hilbi, H. (2017) Structural insights into *Legionella* RidL-Vps29 retromer subunit interaction reveal displacement of the regulator TBC1D5. *Nat. Commun.* 8: 1543.
- Steiner, B., Swart, A. L., Welin, A., Weber, S., Personnic, N., Kaech, A., Freyre, C., Ziegler, U., Klemm, R. W. & Hilbi, H. (2017) ER remodeling by the large GTPase atlastin promotes vacuolar growth of *Legionella pneumophila*. *EMBO Rep.* 18: 1817-1836.
- Escoll, P., Song, O.-R., Viana, F., Steiner, B., Lagache, T., Olivo-Marin, J.-C., Impens, F., Brodin, P., Hilbi, H. & Buchrieser, C. (2017) *Legionella pneumophila* modulates mitochondrial dynamics to trigger metabolic repurposing of infected macrophages. *Cell Host Microbe* 22: 302-316.
- Schmölders, J., Manske, C., Otto, A., Hoffmann, C., Steiner, B., Welin, A., Becher, D. & Hilbi, H. (2017) Comparative proteomics of purified pathogen vacuoles correlates intracellular replication of *Legionella pneumophila* with the small GTPase Rap1. *Mol. Cell. Proteomics* 16: 622-641.
- Steiner, B., Weber, S. & Hilbi, H. (2017) Formation of the *Legionella*-containing vacuole: phosphoinositide conversion, GTPase modulation and ER dynamics. *Int. J. Med. Microbiol.* 308: 49-57.
- Manske, C., Schell, U. & Hilbi, H. (2016) Metabolism of *myo*-inositol by *Legionella pneumophila* promotes infection of amoeba and macrophages. *Appl. Environ. Microbiol.* 82: 5000-5014.
- Häuslein, I., Manske, C., Goebel, W., Eisenreich, W. & Hilbi, H. (2016) Pathway analysis using ¹³C-glycerol and other carbon tracers reveals bipartite metabolism of *Legionella pneumophila*. *Mol. Microbiol.* 100: 229-246.

- Schell, U., Simon, S., Sahr, T., Hager, D., Albers, M. F., Kessler, A., Fahrnbauer, F., Trauner, D., Hedberg, C., Buchrieser, C. & Hilbi, H. (2016) The α -hydroxyketone LAI-1 regulates motility, Lqs-dependent phosphorylation signaling and gene expression of *Legionella pneumophila*. *Mol. Microbiol.* 99: 778-793.
- Personnic, N., Bärlocher, K., Finsel, I. & Hilbi, H. (2016) Subversion of retrograde trafficking by translocated pathogen effectors. *Trends Microbiol.* 24: 450-462.
- Simon, S., Schell, U., Heuer, N., Hager, D., Albers, M. F., Matthias, J., Fahrnbauer, F., Trauner, D., Eichinger, L., Hedberg, C. & Hilbi, H. (2015) Inter-kingdom signaling by the *Legionella* quorum sensing molecule LAI-1 inhibits cell migration through an IQGAP1/CDC42/ARHGEF9-dependent pathway. *PLoS Pathog.* 11: e1005307.
- Harrison, C. F., Chiriano, G., Finsel, I., Manske, C., Hoffmann, C., Steiner, B., Kranjc, A., Pattey-Vuadens, O., Kicka, S., Trofimov, V., Ouertatani-Sakouhi, H., Soldati, T., Scapozza, L. & Hilbi, H. (2015) Amoebae-based screening reveals a novel family of compounds restricting intracellular *Legionella*. *ACS Infect. Dis.* 1: 327-338.
- Finsel, I. & Hilbi, H. (2015) Formation of a pathogen vacuole according to *Legionella pneumophila*: how to kill one bird with many stones. *Cell. Microbiol.* 17: 935-950.
- Weber, S., Stirnimann, C. U., Wieser, M., Frey, D., Meier, R., Engelhardt, S., Li, X., Capitani, G., Kammerer, R. A. & Hilbi, H. (2014) A type IV-translocated *Legionella* cysteine phytase counteracts intracellular growth restriction by phytate. *J. Biol. Chem.* 289: 34175-34188.
- Weber, S., Wagner, M. & Hilbi, H. (2014) Live cell imaging of phosphoinositide dynamics and membrane architecture during *Legionella* infection. *mBio* 5: e00839-13.
- Hoffmann, C., Finsel, I., Otto, A., Pfaffinger, G., Rothmeier, E., Hecker, M., Becher, D. & Hilbi, H. (2014) Functional analysis of novel small GTPases identified in the proteome of purified *Legionella*-containing vacuoles from macrophages. *Cell. Microbiol.* 16: 1034-1052.
- Hoffmann, C., Harrison, C. F. & Hilbi, H. (2014) The natural alternative: protozoa as cellular models for *Legionella* infection. *Cell. Microbiol.* 16: 15-26.
- Simon, S., Wagner, M., Rothmeier, E., Müller-Taubenberger, A. & Hilbi, H. (2014) Icm/Dot-dependent inhibition of phagocyte migration by *Legionella* is antagonized by a translocated Ran GTPase activator. *Cell. Microbiol.* 16: 977-992.
- Rothmeier, E., Pfaffinger, G., Hoffmann, C., Harrison, C. F., Grabmayr, H., Repnik, U., Hannemann, M., Wölke, S., Bausch, A., Griffith, G., Müller-Taubenberger, A., Itzen, A. & Hilbi, H. (2013) Activation of Ran GTPase by a *Legionella* effector promotes

- microtubule polymerization, pathogen vacuole motility and infection. *PLoS Pathog.* 9: e1003598.
- Finsel, I., Ragaz, C., Hoffmann, C., Harrison, C. F., Weber, S., van Rahden, V. A., Johannes, L. & Hilbi, H. (2013) The *Legionella* effector RidL inhibits retrograde trafficking to promote intracellular replication. *Cell Host Microbe* 14: 38-50.
- Kessler, A., Schell, U., Sahr, T., Tiaden, A., Harrison, C. F., Buchrieser, C. & Hilbi, H. (2013) The *Legionella pneumophila* orphan sensor kinase LqsT regulates competence and pathogen-host interactions as a component of the LAI-1 circuit. *Environ. Microbiol.* 15: 646-662.
- Hilbi, H. & Haas, A. (2012) Secretive bacterial pathogens and the secretory pathway. *Traffic* 13: 1187-1197.
- Hilbi, H., Hoffmann, C. & Harrison, C. F. (2011) *Legionella* spp. outdoors: colonization, communication and persistence. *Environ. Microbiol. Rep.* 3: 286-296.
- Tiaden, A., Spirig, T., Sahr, T., Wälti, M. A., Boucke, K., Buchrieser, C. & Hilbi, H. (2010) The autoinducer synthase LqsA and putative sensor kinase LqsS regulate phagocyte interactions, extracellular filaments and a genomic island of *Legionella pneumophila*. *Environ. Microbiol.* 12: 1243-1259.
- Tiaden, A., Spirig, T. & Hilbi, H. (2010) Bacterial gene regulation by α -hydroxyketone signaling. *Trends Microbiol.* 18: 288-297.
- Brombacher, E., Urwyler, S., Ragaz, C., Weber, S. S., Kami, K., Overduin, M. & Hilbi, H. (2009) Rab1 guanine nucleotide exchange factor SidM is a major PtdIns(4)P-binding effector protein of *Legionella pneumophila*. *J. Biol. Chem.* 284: 4846–4856.
- Urwyler, S., Nyfeler, Y., Ragaz, C., Lee, H., Mueller, L. N., Aebersold, R. & Hilbi, H. (2009) Proteome analysis of *Legionella* vacuoles purified by magnetic immuno-separation reveals secretory and endosomal GTPases. *Traffic* 10: 76-87.
- Weber, S. S., Ragaz, C. & Hilbi, H. (2009) Pathogen trafficking pathways and host phosphoinositide metabolism. *Mol. Microbiol.* 71: 1341-1352.
- Spirig, T., Tiaden, A., Kiefer, P., Buchrieser, C., Vorholt, J. A. & Hilbi, H. (2008) The *Legionella* autoinducer synthase LqsA produces an α -hydroxyketone signaling molecule. *J. Biol. Chem.* 283: 18113-18123.
- Schroeder, G. N. & Hilbi, H. (2008) Molecular pathogenesis of *Shigella* spp.: controlling host cell signaling, invasion and death by type III secretion. *Clin. Microbiol. Rev.* 21: 134-156.

- Tiaden, A., Spirig, T., Weber, S. S., Brüggemann, H., Bosshard, R., Buchrieser, C. & Hilbi, H. (2007) The *Legionella pneumophila* response regulator LqsR promotes host cell interactions as an element of the virulence regulatory network controlled by RpoS and LetA. *Cell. Microbiol.* 9: 2903-2920.
- Schroeder, G. N. & Hilbi, H. (2007) Cholesterol is required to trigger caspase-1 activation and macrophage apoptosis after phagosomal escape of *Shigella*. *Cell. Microbiol.* 9: 265-278.
- Weber, S. S., Ragaz, C., Reus, K., Nyfeler Y. & Hilbi, H. (2006) *Legionella pneumophila* exploits PI(4)P to anchor secreted effector proteins to the replicative vacuole. *PLoS Pathog.* 2: e46.