

Experimental papers

43. **Westermann AJ**, Schock A, Al Din Ashour D, Wende S, Skevaki C, Mack E, Schmeck B, Linne U, Herrmann T, Antonakos N, Florou H, Giamarellos-Bourboulis EJ, Weis S, Vogel J, Schulte LN (2026) A human-specific long noncoding RNA regulator of antigen-presenting cell viability and antimicrobial defense. **PNAS** (in press).
42. Bornet E & **Westermann AJ** (2026) Single-bacterium RNA-seq protocol to uncover heterogeneous expression of coding and noncoding genes in *Bacteroides thetaiotaomicron*. **STAR Protocols** 7(3):104651. doi: 10.1016/j.xpro.2026.104651.
41. Kanda T, Liu F, Kooshapour H, Reichardt S, Wang M, Icyishaka P, Obana N, **Westermann AJ**, Chao Y, Miyakoshi M (2025) 3'UTR-derived small RNA couples acid resistance to metabolic reprogramming of *Salmonella* within macrophages. **Nucleic Acids Research** 53(22):gkaf1371. doi: 10.1093/nar/gkaf1371.
40. Kooshapour H, Matera G, Venturini E, Metka L, Bischler T, Vogel J, **Westermann AJ** (2025) Intramacrophage RIL-seq uncovers an RNA antagonist of the *Salmonella* virulence-associated small RNA PinT. **Nucleic Acids Research** 53(22):gkaf1364. doi: 10.1093/nar/gkaf1364.
39. Heilig L, Bussemer L, Strobel L, Hünninger-Ast K, Kurzai O, Grothey A, Dölken L, Laib Sampaio K, Panagiotou G, **Westermann AJ**, Einsele H, Wurster T, Schäuble S, Löffler J (2025) Unveiling immune interference: How the dendritic cell response to co-infection with *Aspergillus fumigatus* is modulated by human cytomegalovirus and its virokinin CMVIL-10. **mBio** 22:e0154125. doi: 10.1128/mbio.01541-25.
38. Trussler RS, Scherba N-JQ, Kooshapour H, Ellis MJ, Förstner KU, Albert M, **Westermann AJ**⁺, Haniford DB⁺ (2025) A small RNA derived from the 5' end of the IS200 *tnpA* transcript regulates multiple virulence regulons in *Salmonella* Typhimurium. **Molecular Microbiology** doi: 10.1111/mmi.70016.
37. Bornet E, Prezza G, Cecchino L, Jenniches L, Behrends J, Tawk C, Huang KC, Strowig T, Vogel J, Barquist L, Saliba A-E, **Westermann AJ** (2025) Low-input RNA-seq suggests metabolic specialization underlying morphological heterogeneity in a gut commensal bacterium. **Cell Reports** 44(6):115844. doi: 10.1016/j.celrep.2025.115844. [Spotlight in Trends in Microbiology \(PMID: 40628542\)](#).
36. Damigos S, Caliskan A, Wajant G, Giddins S, Moldovan A, Kuhn S, Putz E, Dandekar T, Rudel T, **Westermann AJ**, Zdzienicka D (2025) A multicellular *in vitro* model of the human intestine with immunocompetent features highlights host-pathogen interactions during early *Salmonella* Typhimurium infection. **Advanced Science** 12(9):e2411233. doi: 10.1002/advs.202411233.
35. Rüttiger A-S, Ryan D, Spiga L, Lamm-Schmidt V, Prezza G, Reichardt S, Langford M, Barquist L, Faber F, Zhu W, **Westermann AJ** (2025) The global RNA-binding protein RbpB is a regulator of polysaccharide utilization in *Bacteroides thetaiotaomicron*. **Nature Communications** 16(1):208. doi: 10.1038/s41467-024-55383-8.
34. Venturini E, Maaß S, Bischler T, Becher D, Vogel J, **Westermann AJ** (2025)

- Functional characterization of the DUF1127-containing small protein YjiS of *Salmonella* Typhimurium.
microLife 6:uqae026. doi: 10.1093/femsml/uqae026. eCollection 2025.
33. Hamrock FJ, Ryan D, Shaibah A, Ershova AS, Mogre A, Sulimani MM, Reichardt S, Hokamp K, **Westermann AJ**, Kröger C (2024)
Global analysis of the RNA-RNA interactome in *Acinetobacter baumannii* AB5075 uncovers a small regulatory RNA repressing the virulence-related outer membrane protein CarO.
Nucleic Acids Research gkae668. doi: 10.1093/nar/gkae668.
 32. Vollmuth N, Sauerwein T, Förstner KU, **Westermann AJ**, Schubert-Unkmeir A, Lam D, Kim BJ (2024)
Streptococcus agalactiae strain COH1 transcriptome in association with stem cell-derived brain-like endothelial cells.
Microbiology Resource Announcements e0045524. doi: 10.1128/mra.00455-24.
 31. Vollmuth N*, Bridgers BE*, Armstrong ML, Gildea A, Wood J, Espinal ER, Hooven TA, Barbieri G, **Westermann AJ**, Sauerwein T, Förstner KU, Schubert-Unkmeir A, Kim BJ (2024)
Group B streptococcal transcriptome when interacting with brain endothelial cells.
Journal of Bacteriology 206(6):e0008724. doi: 10.1128/jb.00087-24.
 30. Jenniches L, Michaux C, Popella L, Reichardt S, Vogel J, **Westermann AJ**, Barquist L (2024)
Improved RNA stability estimation through Bayesian modeling reveals most *Salmonella* transcripts have sub-minute half-lives.
PNAS 121(14):e2308814121. doi: 10.1073/pnas.2308814121.
 29. Zhang K, Repnik U, Diab N, Friske D, Pütz A, Hensel M, Förstner KU, **Westermann AJ**, Dupont A, Hornef MW (2024)
Non-professional efferocytosis of *Salmonella*-infected intestinal epithelial cells in the neonate host.
Journal of Experimental Medicine 221(3): e20231237. doi: 10.1084/jem.20231237.
 28. Prezza G, Liao C, Reichardt S, Beisel CL, **Westermann AJ** (2024)
CRISPR-based screening of small RNA modulators of bile susceptibility in *Bacteroides thetaiotaomicron*.
PNAS 121(6):e2311323121. doi: 10.1073/pnas.2311323121.
 27. Ryan D, Bornet E, Prezza G, Varshini Alampalli S, Franco de Carvalho T, Felchle H, Ebbecke T, Hayward R, Deutschbauer AM, Barquist L, **Westermann AJ** (2024)
An expanded transcriptome atlas for *Bacteroides thetaiotaomicron* reveals a small RNA that modulates tetracycline sensitivity.
Nature Microbiology 9(4):1130-1144. doi: 10.1038/s41564-024-01642-9.
 26. Däullary T*, Imdahl F*, Dietrich O, Hepp L, Krammer T, Fey C, Neuhaus W, Metzger M, Vogel J, **Westermann AJ**, Saliba A-E, Zdzienicka D (2023)
A primary cell-based *in vitro* model of the human small intestine reveals host Olfactomedin-4 induction in response to *Salmonella* Typhimurium infection.
Gut Microbes 15(1):2186109. doi: 10.1080/19490976.2023.2186109.
 25. Jiao C, Reckstadt C, König F, Homberger C, Yu J, Vogel J, **Westermann AJ**, Sharma CM, Beisel CL (2023)
Programmable RNA recording in single living cells.
Nature Biotechnology 41(8):1107-1116. doi: 10.1038/s41587-022-01604-8.
 24. Schuster E-M, Eppe MW, Bremser A, Lucht K, Zimmermann J, Polyzou A, Ballabio A, Trompouki E, Vogel J, Büscher J, **Westermann AJ**, Rambold AS (2022)
TFEB induces mitochondrial itaconate synthesis to suppress bacterial growth in macrophages.
Nature Metabolism 4(7):856-866. doi: 10.1038/s42255-022-00605-w.
 23. Prezza G*, Ryan D*, Mädler G, Reichardt S, Barquist L*, **Westermann AJ*** (2022)

- Comparative genomics provides structural and functional insights into *Bacteroides* RNA biology.
Molecular Microbiology 117(1):67-85. doi: 10.1111/mmi.14793.
22. Fulde M*, van Vorst K*, Zhang K, **Westermann AJ**, Busche T, Huei YC, Welitschanski K, Froh I, Pägelow D, Plendl J, Pfarrer C, Kalinowski J, Vogel J, Valentin-Weigand P, Hensel M, Tedin K, Repnik U, Hornef MW (2021)
SPI2 T3SS effectors facilitate enterocyte apical to basolateral transmigration of *Salmonella* containing vacuoles *in vivo*.
Gut Microbes 13(1):1973836. doi: 10.1080/19490976.2021.1973836.
 21. Santos SC, Bischler T, **Westermann AJ***, Vogel J* (2021)
MAPS integrates overlooked regulation of actin-targeting effector SteC into the virulence control network of *Salmonella* small RNA PinT.
Cell Reports 34(5):108722. doi: 10.1016/j.celrep.2021.108722.
Recommended in Faculty Opinions as being of special significance in its field.
 20. Venturini E, Svensson SL, Maaß S, Gelhausen R, Eggenhofer F, Li L, Cain AK, Parkhill J, Becher D, Backofen R, Barquist L*, Sharma CM*, **Westermann AJ***, Vogel J* (2020)
A global data-driven census of *Salmonella* small proteins and their potential functions in bacterial virulence.
microLife 1(1):uqaa002. doi: 10.1093/femsml/uqaa002.
 19. Seelbinder B*, Wallstabe J*, Marischen L*, Weiss E, Wurster S, Page L, Löffler C, Bussemer L, Schmitt A-L, Wolf T, Linde J, Cicin-Sain L, Becker J, Kalinke U, Vogel J, Panagiotou G, Einsele H, **Westermann AJ***, Schäuble S*, Löffler J* (2020)
Triple RNA-seq reveals synergy in a human virus-fungus co-infection model.
Cell Reports 33(7):108389. doi: 10.1016/j.celrep.2020.108389.
 18. Hennessen F, Miethke M, Zaburanyi N, Herrmann J, Loose M, Lukežič T, Hüttel S, Jansen R, Schmiedel J, Imirzalioglu C, Vogel J, **Westermann AJ**, Hestekamp T, Stadler M, Wagenlehner F, Petković H, Müller R (2020)
Amidochelocardin overcomes resistance mechanisms exerted on tetracyclines and natural chelocardin.
Antibiotics 9(9):E619. doi: 10.3390/antibiotics9090619.
 17. Ryan D, Jenniches L, Reichardt S, Barquist L, **Westermann AJ** (2020)
A high-resolution transcriptome map identifies small RNA regulation of metabolism in the gut microbe *Bacteroides thetaiotaomicron*.
Nature Communications 11(1):3557. doi: 10.1038/s41467-020-17348-5.
HZI 'Paper of the Month' August 2020.
 16. Mika-Gospodorz B*, Giengkam S*, **Westermann AJ**, Wongsantichon J, Kion-Crosby W, Chuenklin S, Wang LC, Sunyakumthorn P, Sobota RM, Subbian S, Vogel J, Barquist L, Salje J (2020)
Dual RNA-seq provides insight into the biology of the neglected intracellular human pathogen *Orientia tsutsugamushi*.
Nature Communications 11(1):3363. doi: 10.1038/s41467-020-17094-8.
 15. Prezza G, Heckel T, Dietrich S, Homberger C, **Westermann AJ***, Vogel J* (2020)
Improved bacterial RNA-seq by Cas9-based depletion of ribosomal RNA reads.
RNA 26(8):1069-1078. doi: 10.1261/rna.075945.120.
 14. Schulte LN*, Schweinlin M*, **Westermann AJ**, Janga H, Santos SC, Appenzeller S, Walles H, Vogel J, Metzger M (2020)
An advanced human intestinal co-culture model reveals compartmentalized host and pathogen strategies during *Salmonella* infection.
mBio 11(1): e03348-19. doi: 10.1128/mBio.03348-19.

13. Martins Gomes SF, **Westermann AJ**, Sauerwein T, Hertlein T, Förstner KU, Ohlsen K, Metzger M, Shusta EV, Kim BJ, Appelt-Menzel A, Schubert-Unkmeir A (2019)
Induced pluripotent stem cell-derived brain endothelial cells as a cellular model to study *Neisseria meningitidis* infection.
Frontiers Microbiology 10:1181. doi: 10.3389/fmicb.2019.01181.
12. **Westermann AJ**, Venturini E, Sellin ME, Förstner KU, Hardt W-D, Vogel J (2019)
The major RNA-binding protein ProQ impacts virulence gene expression in *Salmonella* Typhimurium.
mBio 10(1): e02504-18. doi: 10.1128/mBio.02504-18.
11. Stapels DAC, Hill PWS, **Westermann AJ**, Fisher R, Thurston TL, Saliba A-E, Blommestein I, Vogel J, Helaine S (2018)
Salmonella persists undermine host immune defences during antibiotic treatment.
Science 362(6419):1156-1160. doi: 10.1126/science.aat7148.
Covered by In Brief in Nature Reviews Microbiology 17,65-65.
10. Simon LM, Karg S, **Westermann AJ**, Engel M, Elbehery AHA, Hense B, Heinig M, Deng L, Theis FJ (2018)
MetaMap: An atlas of metatranscriptomic reads in human disease-related RNA-seq data.
GigaScience 7(6):giy070. doi: 10.1093/gigascience/giy070.
9. El Mouali Y, Gaviria-Cantin T, Sánchez-Romero MA, Gibert M, **Westermann AJ**, Vogel J, Balsalobre C (2018)
CRP-cAMP mediates silencing of *Salmonella* virulence at the post-transcriptional level.
PLoS Genetics 14(6):e1007401. doi: 10.1371/journal.pgen.1007401.
8. Michaux C, Holmqvist E, Vasicek E, Sharan M, Barquist L, **Westermann AJ**, Gunn J, Vogel J (2017)
RNA target profiles direct the discovery of virulence functions for the cold shock proteins CspC and CspE.
PNAS 114(26):6824-6829. doi: 10.1073/pnas.1620772114.
7. **Westermann AJ**, Förstner KU, Amman F, Barquist L, Chao Y, Schulte LN, Müller L, Reinhardt R, Stadler PF, Vogel J (2016)
Dual RNA-seq unveils noncoding RNA functions in *Salmonella*-host interplay.
Nature 529(7587):496-501. doi: 10.1038/nature16547.
Covered by News & Views in Nature 529(7587):472-3, Nature Reviews Genetics 17(3):126, Faculty 1000.
6. Saliba A-E, Li L, **Westermann AJ**, Appenzeller S, Stapels DAC, Schulte L, Helaine S, Vogel J (2016)
Single-cell RNA-seq ties macrophage polarization to growth rate of intracellular *Salmonella*.
Nature Microbiology 2:16206. doi: 10.1038/nmicrobiol.2016.206.
"Paper of the Month" December 2016 of the German Society for Hygiene and Microbiology (DGHM).
5. Müller AA, Dolowschiak T, Sellin ME, Felmy B, Verbree C, Gadiant S, **Westermann AJ**, Vogel J, LeibundGut-Landmann S, Hardt W-D (2016)
An NK cell perforin response elicited via IL-18 controls mucosal inflammation kinetics during *Salmonella* gut infection.
PLoS Pathogens 12(6):e1005723. doi: 10.1371/journal.ppat.1005723.
4. Afonso-Grunz F, Hoffmeier K, Müller S, **Westermann AJ**, Rotter B, Vogel J, Winter P, Kahl G (2015)
Dual 3'Seq using deepSuperSAGE uncovers transcriptomes of interacting *Salmonella* Typhimurium and human host cells.
BMC Genomics 16(1):323. doi: 10.1186/s12864-015-1489-1.
3. Schulte LN, **Westermann AJ**, Vogel J (2013)
Differential activation and functional specialization of miR-146 and miR-155 in innate immune sensing.

Nucleic Acids Research 7;41(1):542-53. doi: 10.1093/nar/gks1030.

2. Hickey SF, Sridhar M, **Westermann AJ**, Qin Q, Vijayendra P, Liou G, Hammond MC (2012)
Transgene regulation in plants by alternative splicing of a suicide exon.
Nucleic Acids Research 40(10):4701-10. doi: 10.1093/nar/gks032.
1. Stauffer E, **Westermann A**, Wagner G, Wachter A (2010)
Polypyrimidine tract-binding protein homologues from *Arabidopsis* underlie regulatory circuits based on alternative splicing and downstream control.
Plant Journal 64(2):243-55. doi: 10.1111/j.1365-313X.2010.04321.x.

* equal contribution

+ co-correspondence

Reviews

8. Clavel T, Faber F, Groussin M, Haller D, Overmann J, Pauvert C, Poyet M, Selkig J, Stecher B, Typas A, Vehreschild M, **Westermann AJ**, Wylensek D, Maier L (2025)
Enabling next-generation anaerobic cultivation through biotechnological innovation to advance functional microbiome research.
Nature Biotechnology doi.org/10.1038/s41587-025-02660-6.
7. Bornet E, **Westermann AJ** (2022)
The ambivalent role of *Bacteroides* in enteric infections.
Trends in Microbiology 30(2):104-108. doi: 10.1016/j.tim.2021.11.009.
6. **Westermann AJ***, Vogel J*+ (2021)
Cross-species RNA-seq for deciphering host-microbe interactions.
Nature Reviews Genetics 22(6):361-378. doi: 10.1038/s41576-021-00326-y.
5. Ryan D, Prezda G, **Westermann AJ** (2020)
An RNA-centric view on gut Bacteroidetes.
Biological Chemistry 402(1):55-72. doi: 10.1515/hsz-2020-0230.
4. **Westermann AJ***, Barquist L*, Vogel J (2017)
Resolving host-pathogen interactions by dual RNA-seq.
PLoS Pathogens 13(2):e1006033. doi: 10.1371/journal.ppat.1006033.
3. Barquist L*, **Westermann AJ***, Vogel J (2016)
Molecular phenotyping of infection-associated small noncoding RNAs.
Philosophical Transactions of the Royal Society B 371(1707). doi: 10.1098/rstb.2016.0081.
2. Saliba AE, **Westermann AJ**, Gorski SA, Vogel J (2014)
Single-cell RNA-seq: advances and future challenges.
Nucleic Acids Research 42(14):8845-60. doi: 10.1093/nar/gku555.
1. **Westermann AJ**, Gorski SA, Vogel J (2012)
Dual RNA-seq of pathogen and host.
Nature Reviews Microbiology 10(9):618-30. doi: 10.1038/nrmicro2852.

* equal contribution

+ co-correspondence

Book chapters

4. Prezza G & **Westermann AJ** (2024)
CRISPR interference-based functional small RNA genomics.
In: Arluison V, Valverde C (eds) Bacterial regulatory RNA.
Methods in Molecular Biology 2024;2741:101-116. doi: 10.1007/978-1-0716-3565-0_6.
3. Frönicke L, Bronner DN, Byndloss MX, McLaughlin B, Bäuml AJ, **Westermann AJ** (2018)
Toward cell type-specific *in-vivo* dual RNA-seq.
In: Carpousis AJ (ed) High-density sequencing applications in microbial molecular genetics.
Methods in Enzymology 2018;612:505-522. doi: 10.1016/bs.mie.2018.08.013.
2. **Westermann AJ** (2018)
Regulatory RNAs in virulence and host-microbe interactions.
In: Papenfort K, Storz G (eds) Regulating with RNA in bacteria and archaea.
Microbiology Spectrum 6(4):RWR-0002-2017. doi: 10.1128/microbiolspec.RWR-0002-2017.
1. **Westermann AJ** & Vogel J (2018)
Host-pathogen transcriptomics by dual RNA-seq.
In: Arluison V, Valverde C (eds) Bacterial regulatory RNA.
Methods in Molecular Biology 2018;1737:59-75. doi: 10.1007/978-1-4939-7634-8_4.