9. LITERATURA

Allison, K. R., Brynildsen, M. P., & Collins, J. J. (2011). Heterogeneous bacterial persisters and engineering approaches to eliminate them. *Curr Opin Microbiol* 14 (5), 593–598. doi: 10.1016/j.mib.2011.09.002

Amato, S. M., & Brynildsen, M. P. (2015). Persister Heterogeneity Arising from a Single Metabolic Stress. *Curr Biol* 25 (16), 2090–2098. doi: 10.1016/j.cub.2015.06.034

Andersson, D. I. (2003). Persistence of antibiotic resistant bacteria. *Curr Opin Microbiol* 6 (5), 452–456. doi: 10.1016/j.mib.2003.09.001

Andersson, D. I., Nicoloff, H., & Hjort, K. (2019). Mechanisms and clinical relevance of bacterial heteroresistance. *Nat Rev Microbiol* 17 (8), 479–496. doi: 10.1038/s41579-019-0218-1

Asher, E., Dagan, R., Greenberg, D., Givon-Lavi, N., Libson, S., Porat, N., … Leibovitz, E. (2008). Persistence of pathogens despite clinical improvement in antibiotic-treated acute otitis media is associated with clinical and bacteriologic relapse. *Pediatr Infect Dis J* 27 (4), 296–301. doi: 10.1097/INF.0b013e31815ed79c

Ayrapetyan, M., Williams, T., & Oliver, J. D. (2018). Relationship between the Viable but Nonculturable State and Antibiotic Persister Cells. *J Bacteriol* 200 (20). doi: 10.1128/JB.00249-18

Ayrapetyan, M., Williams, T. C., Baxter, R., & Oliver, J. D. (2015). Viable but Nonculturable and Persister Cells Coexist Stochastically and Are Induced by Human Serum. *Infect Immun* 83 (11), 4194–4203. doi: 10.1128/IAI.00404-15

Bahar, A. A., Liu, Z., Totsingan, F., Buitrago, C., Kallenbach, N., & Ren, D. (2015). Synthetic dendrimeric peptide active against biofilm and persister cells of Pseudomonas aeruginosa. *Appl Microbiol Biotechnol* 99 (19), 8125–8135. doi: 10.1007/s00253-015-6645-7

Baharoglu, Z., & Mazel, D. (2014a). Influence of very short patch mismatch repair on SOS inducing lesions after aminoglycoside treatment in Escherichia coli. *Res Microbiol, 165*(6), 476-480. doi: 10.1016/j.resmic.2014.05.039

Baharoglu, Z., & Mazel, D. (2014b). SOS, the formidable strategy of bacteria against aggressions. *FEMS Microbiol Rev* 38 (6), 1126–1145. doi: 10.1111/1574-6976.12077

Bakkeren, E., Diard, M., & Hardt, W. D. (2020). Evolutionary causes and consequences of bacterial antibiotic persistence. *Nat Rev Microbiol*. doi: 10.1038/s41579-020-0378-z

Balaban, N. Q. (2011). Persistence: mechanisms for triggering and enhancing phenotypic variability. *Curr Opin Genet Dev, 21*(6), 768-775. doi: 10.1016/j.gde.2011.10.001

Balaban, N. Q., Helaine, S., Lewis, K., Ackermann, M., Aldridge, B., Andersson, D. I., … Zinkernagel, A. (2019). Definitions and guidelines for research on antibiotic persistence. *Nat Rev Microbiol, 17*(7), 441-448. doi: 10.1038/s41579-019-0196-3

Balaban, N. Q., Merrin, J., Chait, R., Kowalik, L., & Leibler, S. (2004). Bacterial persistence as a phenotypic switch. *Science* 305 (5690), 1622–1625. doi: 10.1126/science.1099390

Barbosa, T. M., & Levy, S. B. (2000). The impact of antibiotic use on resistance development and persistence. *Drug Resist Updat* 3 (5), 303–311. doi: 10.1054/drup.2000.0167

Battesti, A., Majdalani, N., & Gottesman, S. (2011). The RpoS-mediated general stress response in Escherichia coli. *Annu Rev Microbiol* 65, 189–213. doi: 10.1146/annurev-micro-090110-102946

Bissessor, M., Whiley, D. M., Fairley, C. K., Bradshaw, C. S., Lee, D. M., Snow, A. S., … Chen, M. Y. (2015). Persistence of Neisseria gonorrhoeae DNA following treatment for pharyngeal and rectal gonorrhea is influenced by antibiotic susceptibility and reinfection. *Clin Infect Dis* 60 (4), 557–563. doi: 10.1093/cid/ciu873

Brauner, A., Fridman, O., Gefen, O., & Balaban, N. Q. (2016). Distinguishing between resistance, tolerance and persistence to antibiotic treatment. *Nat Rev Microbiol* 14 (5), 320–330. doi: 10.1038/nrmicro.2016.34

Brauner, A., Shoresh, N., Fridman, O., & Balaban, N. Q. (2017). An Experimental Framework for Quantifying Bacterial Tolerance. *Biophys J,* 112 (12), 2664–2671. doi: 10.1016/j.bpj.2017.05.014

Buckling, A., Wills, M. A., & Colegrave, N. (2003). Adaptation limits diversification of experimental bacterial populations. *Science* 302 (5653), 2107–2109. doi: 10.1126/science.1088848

Cabral, D. J., Wurster, J. I., & Belenky, P. (2018). Antibiotic Persistence as a Metabolic Adaptation: Stress, Metabolism, the Host, and New Directions. *Pharmaceuticals (Basel)* 11 (1). doi: 10.3390/ph11010014

Calero-Caceres, W., Mendez, J., Martin-Diaz, J., & Muniesa, M. (2017). The occurrence of antibiotic resistance genes in a Mediterranean river and their persistence in the riverbed sediment. *Environ Pollut* 223, 384–394. doi: 10.1016/j.envpol.2017.01.035

Carvalho, G., Balestrino, D., Forestier, C., & Mathias, J. D. (2018). How do environment-dependent switching rates between susceptible and persister cells affect the dynamics of biofilms faced with antibiotics? *NPJ Biofilms Microbiomes* 4, 6. doi: 10.1038/s41522-018-0049-2

Cohen, N. R., Lobritz, M. A., & Collins, J. J. (2013). Microbial persistence and the road to drug resistance. *Cell Host Microbe* 13 (6), 632–642. doi: 10.1016/j.chom.2013.05.009

Corona, F., & Martinez, J. L. (2013). Phenotypic Resistance to Antibiotics. *Antibiotics (Basel)* 2 (2), 237–255. doi: 10.3390/antibiotics2020237

Cottell, J. L., Saw, H. T., Webber, M. A., & Piddock, L. J. (2014). Functional genomics to identify the factors contributing to successful persistence and global spread of an antibiotic resistance plasmid. *BMC Microbiol* 14, 168. doi: 10.1186/1471-2180-14-168

Cui, P., Niu, H., Shi, W., Zhang, S., Zhang, W., & Zhang, Y. (2018). Identification of Genes Involved in Bacteriostatic Antibiotic-Induced Persister Formation. *Front Microbiol* 9, 413. doi: 10.3389/fmicb.2018.00413

Delsol, A. A., Halfhide, D. E., Bagnall, M. C., Randall, L. P., Enne, V. I., Woodward, M. J., & Roe, J. M. (2010). Persistence of a wild type Escherichia coli and its multiple antibiotic-resistant (MAR) derivatives in the abattoir and on chilled pig carcasses. *Int J Food Microbiol* 140 (2–3), 249–253. doi: 10.1016/j.ijfoodmicro.2010.03.023

Dersch, P., Khan, M. A., Muhlen, S., & Gorke, B. (2017). Roles of Regulatory RNAs for Antibiotic Resistance in Bacteria and Their Potential Value as Novel Drug Targets. *Front Microbiol, 8*, 803. doi: 10.3389/fmicb.2017.00803

Donegan, N. P., Thompson, E. T., Fu, Z., & Cheung, A. L. (2010). Proteolytic regulation of toxin-antitoxin systems by ClpPC in Staphylococcus aureus. *J Bacteriol* 192 (5), 1416–1422. doi: 10.1128/JB.00233-09

Ezraty, B., Gennaris, A., Barras, F., & Collet, J. F. (2017). Oxidative stress, protein damage and repair in bacteria. *Nat Rev Microbiol* 15 (7), 385–396. doi: 10.1038/nrmicro.2017.26

Ezzariai, A., Hafidi, M., Khadra, A., Aemig, Q., El Fels, L., Barret, M., … Pinelli, E. (2018). Human and veterinary antibiotics during composting of sludge or manure: Global perspectives on persistence, degradation, and resistance genes. *J Hazard Mater, 359*, 465-481. doi: 10.1016/j.jhazmat.2018.07.092

Fang, F. C., Frawley, E. R., Tapscott, T., & Vazquez-Torres, A. (2016). Bacterial Stress Responses during Host Infection 20 (2), 133–143. doi: 10.1016/j.chom.2016.07.009

Fauvart, M., De Groote, V. N., & Michiels, J. (2011). Role of persister cells in chronic infections: clinical relevance and perspectives on anti-persister therapies. *J Med Microbiol* 60 (Pt 6), 699–709. doi: 10.1099/jmm.0.030932-0

Fernandez-García, L., Blasco, L., Trastoy, R., García-Contreras, R., Wood, T. K., & Tomás, M. (2018). Quorum Sensing Systems and Persistence 17–27. doi: 10.1007/978-981-13-2429-1_3

Francez-Charlot, A., Kaczmarczyk, A., Fischer, H. M., & Vorholt, J. A. (2015). The general stress response in Alphaproteobacteria. *Trends Microbiol* 23 (3), 164–171. doi: 10.1016/j.tim.2014.12.006

Friedman, J., Alm, E. J., & Shapiro, B. J. (2013). Sympatric speciation: when is it possible in bacteria? *PLoS One* 8 (1), e53539. doi: 10.1371/journal.pone.0053539

Fu, H., Yuan, J., & Gao, H. (2015). Microbial oxidative stress response: Novel insights from environmental facultative anaerobic bacteria. *Arch Biochem Biophys* 584, 28–35. doi: 10.1016/j.abb.2015.08.012

Gaupp, R., Ledala, N., & Somerville, G. A. (2012). Staphylococcal response to oxidative stress. *Front Cell Infect Microbiol* 2, 33. doi: 10.3389/fcimb.2012.00033

Gefen, O., Chekol, B., Strahilevitz, J., & Balaban, N. Q. (2017). TDtest: easy detection of bacterial tolerance and persistence in clinical isolates by a modified disk-diffusion assay. *Sci Rep* 7, 41284. doi: 10.1038/srep41284

Gendrin, C., Merillat, S., Vornhagen, J., Coleman, M., Armistead, B., Ngo, L., … Rajagopal, L. (2018). Diminished Capsule Exacerbates Virulence, Blood-Brain Barrier Penetration, Intracellular Persistence, and Antibiotic Evasion of Hyperhemolytic Group B Streptococci. *J Infect Dis* 217 (7), 1128–1138. doi: 10.1093/infdis/jix684

Ghosh, A., Baltekin, O., Waneskog, M., Elkhalifa, D., Hammarlof, D. L., Elf, J., & Koskiniemi, S. (2018). Contact-dependent growth inhibition induces high levels of antibiotic-tolerant persister cells in clonal bacterial populations. *EMBO J*, 37 (9). doi: 10.15252/embj.201798026

Ghosh, S., & LaPara, T. M. (2007). The effects of subtherapeutic antibiotic use in farm animals on the proliferation and persistence of antibiotic resistance among soil bacteria. *ISME J* 1 (3), 191–203. doi: 10.1038/ismej.2007.31

Gollan, B., Grabe, G., Michaux, C., & Helaine, S. (2019). Bacterial Persisters and Infection: Past, Present, and Progressing. *Annu Rev Microbiol* 73, 359-385. doi: 10.1146/annurev-micro-020518-115650

Gomez, J. E., & McKinney, J. D. (2004). M. tuberculosis persistence, latency, and drug tolerance. *Tuberculosis (Edinb)* 84 (1–2), 29–44. doi: 10.1016/j.tube.2003.08.003

Gottesman, S. (2019). Trouble is coming: Signaling pathways that regulate general stress responses in bacteria. *J Biol Chem* 294 (31), 11685–11700. doi: 10.1074/jbc.REV119.005593

Harms, A., Maisonneuve, E., & Gerdes, K. (2016). Mechanisms of bacterial persistence during stress and antibiotic exposure. *Science* 354 (6318). doi: 10.1126/science.aaf4268

Holmqvist, E., & Wagner, E. G. H. (2017). Impact of bacterial sRNAs in stress responses. *Biochem Soc Trans* 45 (6), 1203–1212. doi: 10.1042/BST20160363

Hurdle, J. G., & Deshpande, A. Bacterial persister cells tackled. *Nature* 2018 (556), 40–41.

Chatterjee, I., Schmitt, S., Batzilla, C. F., Engelmann, S., Keller, A., Ring, M. W., … Herrmann, M. (2009). Staphylococcus aureus ClpC ATPase is a late growth phase effector of metabolism and persistence. *Proteomics* 9 (5), 1152–1176. doi: 10.1002/pmic.200800586

Ishida, K., Guze, P. A., Kalmanson, G. M., Albrandt, K., & Guze, L. B. (1982). Variables in demonstrating methicillin tolerance in Staphylococcus aureus strains. *Antimicrob Agents Chemother* 21 (4), 688–690. doi: 10.1128/aac.21.4.688

Karki, P., Mohiuddin, S. G., Kavousi, P., & Orman, M. A. (2020). Investigating the Effects of Osmolytes and Environmental pH on Bacterial Persisters. *Antimicrob Agents Chemother* 64 (5). doi: 10.1128/AAC.02393-19

Kaspy, I., Rotem, E., Weiss, N., Ronin, I., Balaban, N. Q., & Glaser, G. (2013). HipA-mediated antibiotic persistence via phosphorylation of the glutamyl-tRNA-synthetase. *Nat Commun* 4, 3001. doi: 10.1038/ncomms4001

Khare, A., & Tavazoie, S. (2020). Extreme Antibiotic Persistence via Heterogeneity-Generating Mutations Targeting Translation. *mSystems* 5 (1). doi: 10.1128/mSystems.00847-19

Khawaldeh, A., Morales, S., Dillon, B., Alavidze, Z., Ginn, A. N., Thomas, L., … Iredell, J. R. (2011). Bacteriophage therapy for refractory Pseudomonas aeruginosa urinary tract infection. *J Med Microbiol* 60 (Pt 11), 1697–1700. doi: 10.1099/jmm.0.029744-0

Kim, J. S., Heo, P., Yang, T. J., Lee, K. S., Cho, D. H., Kim, B. T., … Kweon, D. H. (2011). Selective killing of bacterial persisters by a single chemical compound without affecting normal antibiotic-sensitive cells. *Antimicrob Agents Chemother* 55 (11), 5380–5383. doi: 10.1128/AAC.00708-11

Kim, W., Zhu, W., Hendricks, G. L., Van Tyne, D., Steele, A. D., Keohane, C. E., … Mylonakis, E. (2018). A new class of synthetic retinoid antibiotics effective against bacterial persisters. *Nature* 556 (7699), 103–107. doi: 10.1038/nature26157

Kohanski, M. A., Dwyer, D. J., Hayete, B., Lawrence, C. A., & Collins, J. J. (2007). A common mechanism of cellular death induced by bactericidal antibiotics. *Cell* 130 (5), 797–810. doi: 10.1016/j.cell.2007.06.049

Kopecká, T., & Melter, O. (2020). Mikrobiální perzistence: nevyhnutelná cesta ke chronicitě a rezistenci? *Zprávy CEM* 29 (4), 173–177.

Kotková, H., Cabrnochová, M., Licha, I., Tkadlec, J., Fila, L., Bartošová, J., & Melter, O. (2019). Evaluation of TD test for analysis of persistence or tolerance in clinical isolates of Staphylococcus aureus. *Journal of Microbiological Methods* 167, 105705. doi: doi: 10.1016/j.mimet.2019.105705

Krebs, J., Bartel, P., & Pannek, J. (2014). Bacterial persistence in the prostate after antibiotic treatment of chronic bacterial prostatitis in men with spinal cord injury. *Urology* 83 (3), 515–520. doi: 10.1016/j.urology.2013.11.023

Kubistova, L., Dvoracek, L., Tkadlec, J., Melter, O., & Licha, I. (2018). Environmental Stress Affects the Formation of Staphylococcus aureus Persisters Tolerant to Antibiotics. *Microb Drug Resist* 24 (5), 547–555. doi: 10.1089/mdr.2017.0064

Kuehl, R., Morata, L., Meylan, S., Mensa, J., & Soriano, A. (2020). When antibiotics fail: a clinical and microbiological perspective on antibiotic tolerance and persistence of Staphylococcus aureus. *J Antimicrob Chemother* 75 (5), 1071–1086. doi: 10.1093/jac/dkz559

Le, K. Y., & Otto, M. (2015). Quorum-sensing regulation in staphylococci-an overview. *Front Microbiol* 6, 1174. doi: 10.3389/fmicb.2015.01174

Leatham-Jensen, M. P., Mokszycki, M. E., Rowley, D. C., Deering, R., Camberg, J. L., Sokurenko, E. V., … Cohen, P. S. (2016). Uropathogenic Escherichia coli Metabolite-Dependent Quiescence and Persistence May Explain Antibiotic Tolerance during Urinary Tract Infection. *mSphere* 1 (1). doi: 10.1128/mSphere.00055-15

Lechner, S., Lewis, K., & Bertram, R. (2012). Staphylococcus aureus persisters tolerant to bactericidal antibiotics. *J Mol Microbiol Biotechnol* 22 (4), 235–244. doi: 10.1159/000342449

Levin, B. R., Concepcion-Acevedo, J., & Udekwu, K. I. (2014). Persistence: a copacetic and parsimonious hypothesis for the existence of non--inherited resistance to antibiotics. *Curr Opin Microbiol* 21, 18–21. doi: 10.1016/j.mib.2014.06.016

Lewis, K. (2007). Persister cells, dormancy and infectious disease. *Nat Rev Microbiol* 5 (1), 48–56. doi: 10.1038/nrmicro1557

Liebeke, M., & Lalk, M. (2014). Staphylococcus aureus metabolic response to changing environmental conditions - a metabolomics perspective. *Int J Med Microbiol* 304 (3–4), 222–229. doi: 10.1016/j.ijmm.2013.11.017

Liu, L., Wang, Y., Bojer, M. S., Andersen, P. S., & Ingmer, H. (2020). High persister cell formation by clinical Staphylococcus aureus strains belonging to clonal complex 30. *Microbiology* 166 (7), 654–658. doi: 10.1099/mic.0.000926

Lushchak, V. I. (2011). Adaptive response to oxidative stress: Bacteria, fungi, plants and animals. *Comp Biochem Physiol C Toxicol Pharmacol* 153 (2), 175–190. doi: 10.1016/j.cbpc.2010.10.004

Mack, S. G., Turner, R. L., & Dwyer, D. J. (2018). Achieving a Predictive Understanding of Antimicrobial Stress Physiology through Systems Biology. *Trends Microbiol* 26 (4), 296–312. doi: 10.1016/j.tim.2018.02.004

Maisonneuve, E., & Gerdes, K. (2014). Molecular mechanisms underlying bacterial persisters. *Cell* 157 (3), 539–548. doi: 10.1016/j.cell.2014.02.050

Melter, O., & Radojevic, B. (2010). Small colony variants of Staphylococcus aureus--review. *Folia Microbiol (Praha)* 55 (6), 548–558. doi: 10.1007/s12223-010-0089-3

Michel, B. (2005). After 30 years of study, the bacterial SOS response still surprises us. *PLoS Biol* 3 (7), e255. doi: 10.1371/journal.pbio.0030255

Micheva-Viteva, S. N., Shakya, M., Adikari, S. H., Gleasner, C. D., Velappan, N., Mourant, J. R., … Hong-Geller, E. (2020). A Gene Cluster That Encodes Histone Deacetylase Inhibitors Contributes to Bacterial Persistence and Antibiotic Tolerance in Burkholderia thailandensis. *mSystems* 5 (1). doi: 10.1128/mSystems.00609-19

Michiels, J. E., Van den Bergh, B., Verstraeten, N., & Michiels, J. (2016). Molecular mechanisms and clinical implications of bacterial persistence. *Drug Resist Updat* 29, 76–89. doi: 10.1016/j.drup.2016.10.002

Millar, M., Philpott, A., Wilks, M., Whiley, A., Warwick, S., Hennessy, E., … Costeloe, K. (2008). Colonization and persistence of antibiotic-resistant Enterobacteriaceae strains in infants nursed in two neonatal intensive care units in East London, United Kingdom. *J Clin Microbiol* 46 (2), 560–567. doi: 10.1128/JCM.00832-07

Mina, E. G., & Marques, C. N. (2016). Interaction of Staphylococcus aureus persister cells with the host when in a persister state and following awakening. *Sci Rep* 6, 31342. doi: 10.1038/srep31342

Mulcahy, L. R., Burns, J. L., Lory, S., & Lewis, K. (2010). Emergence of Pseudomonas aeruginosa strains producing high levels of persister cells in patients with cystic fibrosis. *J Bacteriol* 192 (23), 6191–6199. doi: 10.1128/JB.01651-09

Murakami, K., Ono, T., Viducic, D., Kayama, S., Mori, M., Hirota, K., … Miyake, Y. (2005). Role for rpoS gene of Pseudomonas aeruginosa in antibiotic tolerance. *FEMS Microbiol Lett* 242 (1), 161–167. doi: 10.1016/j.femsle.2004.11.005

Nguyen Thi Thu Hoai, N. T. T., Lambert Peter. (2018). Inhibition of bacterial stress response – state of the art.

Orman, M. A., & Brynildsen, M. P. (2013). Dormancy is not necessary or sufficient for bacterial persistence. *Antimicrob Agents Chemother* 57 (7), 3230–3239. doi: 10.1128/AAC.00243-13

Orman, M. A., & Brynildsen, M. P. (2016). Persister formation in Escherichia coli can be inhibited by treatment with nitric oxide. *Free Radic Biol Med* 93, 145–154. doi: 10.1016/j.freeradbiomed.2016.02.003

Pacios, O., Blasco, L., Bleriot, I., Fernandez-Garcia, L., Ambroa, A., Lopez, M., … Tomas, M. (2020). (p)ppGpp and Its Role in Bacterial Persistence: New Challenges. *Antimicrob Agents Chemother* 64 (10). doi: 10.1128/AAC.01283-20

Pacios, O., Blasco, L., Bleriot, I., Fernandez-Garcia, L., Gonzalez Bardanca, M., Ambroa, A., … Tomas, M. (2020). Strategies to Combat Multidrug-Resistant and Persistent Infectious Diseases. *Antibiotics (Basel)* 9 (2). doi: 10.3390/antibiotics9020065

Palma, M., & Cheung, A. L. (2001). sigma(B) activity in Staphylococcus aureus is controlled by RsbU and an additional factor(s) during bacterial growth. *Infect Immun* 69 (12), 7858–7865. doi: 10.1128/IAI.69.12.7858-7865.2001

Pan, J., Xie, X., Tian, W., Bahar, A. A., Lin, N., Song, F., … Ren, D. (2013). (Z)-4-bromo-5-(bromomethylene)-3-methylfuran-2(5H)-one sensitizes Escherichia coli persister cells to antibiotics. *Appl Microbiol Biotechnol* 97 (20), 9145–9154. doi: 10.1007/s00253-013-5185-2

Pasticci, M. B., Moretti, A., Stagni, G., Ravasio, V., Soavi, L., Raglio, A., … Baldelli, F. (2011). Bactericidal activity of oxacillin and glycopeptides against

Staphylococcus aureus in patients with endocarditis: looking for a relationship between tolerance and outcome. *Ann Clin Microbiol Antimicrob* 10, 26. doi: 10.1186/1476-0711-10-26

Prasetyoputri, A., Jarrad, A. M., Cooper, M. A., & Blaskovich, M. A. T. (2019). The Eagle Effect and Antibiotic-Induced Persistence: Two Sides of the Same Coin? *Trends Microbiol* 27 (4), 339–354. doi: 10.1016/j.tim.2018.10.007

Pribis, J. P., Garcia-Villada, L., Zhai, Y., Lewin-Epstein, O., Wang, A. Z., Liu, J., … Rosenberg, S. M. (2019). Gamblers: An Antibiotic-Induced Evolvable Cell Subpopulation Differentiated by Reactive-Oxygen-Induced General Stress Response. *Mol Cell* 74 (4), 785–800 e787. doi: 10.1016/j.molcel.2019.02.037

Pu, Y., Ke, Y., & Bai, F. (2017). Active efflux in dormant bacterial cells - New insights into antibiotic persistence. *Drug Resist Updat* 30, 7–14. doi: 10.1016/j.drup.2016.11.002

Pu, Y., Li, Y., Jin, X., Tian, T., Ma, Q., Zhao, Z., … Bai, F. (2019). ATP-Dependent Dynamic Protein Aggregation Regulates Bacterial Dormancy Depth Critical for Antibiotic Tolerance. *Mol Cell* 73 (1), 143–156 e144. doi: 10.1016/j.molcel.2018.10.022

Pu, Y., Zhao, Z., Li, Y., Zou, J., Ma, Q., Zhao, Y., … Bai, F. (2016). Enhanced Efflux Activity Facilitates Drug Tolerance in Dormant Bacterial Cells. *Mol Cell* 62 (2), 284–294. doi: 10.1016/j.molcel.2016.03.035

Qian, X., Gu, J., Sun, W., Wang, X. J., Su, J. Q., & Stedfeld, R. (2018). Diversity, abundance, and persistence of antibiotic resistance genes in various types of animal manure following industrial composting. *J Hazard Mater* 344, 716–722. doi: 10.1016/j.jhazmat.2017.11.020

Radzikowski, J. L., Schramke, H., & Heinemann, M. (2017). Bacterial persistence from a system-level perspective. *Curr Opin Biotechnol* 46, 98–105. doi: 10.1016/j.copbio.2017.02.012

Radzikowski, J. L., Vedelaar, S., Siegel, D., Ortega, A. D., Schmidt, A., & Heinemann, M. (2016). Bacterial persistence is an active sigmaS stress response to metabolic flux limitation. *Mol Syst Biol* 12 (9), 882. doi: 10.15252/msb.20166998

Rahman, T., Yarnall, B., & Doyle, D. A. (2017). Efflux drug transporters at the forefront of antimicrobial resistance. *Eur Biophys J.* 46 (7), 647–653. doi: 10.1007/s00249-017-1238-2

Ren, H., He, X., Zou, X., Wang, G., Li, S., & Wu, Y. (2015). Gradual increase in antibiotic concentration affects persistence of Klebsiella pneumoniae. *J Antimicrob Chemother* 70 (12), 3267–3272. doi: 10.1093/jac/dkv251

Renbarger, T. L., Baker, J. M., & Sattley, W. M. (2017). Slow and steady wins the race: an examination of bacterial persistence. *AIMS Microbiol* 3 (2), 171–185. doi: 10.3934/microbiol.2017.2.171

Riffaud, C., Pinel-Marie, M. L., & Felden, B. (2020). Cross-Regulations between Bacterial Toxin-Antitoxin Systems: Evidence of an Interconnected Regulatory Network? *Trends Microbiol* 28 (10), 851–866. doi: 10.1016/j.tim.2020.05.016

Rocha-Granados, M. C., Zenick, B., Englander, H. E., & Mok, W. W. K. (2020). The social network: Impact of host and microbial interactions on bacterial antibiotic tolerance and persistence. *Cell Signal* 75, 109750. doi: 10.1016/j.cellsig.2020.109750

Rulík, M., Holá, V., Růžička, F., & Votava, M. (2011). Mirobiální biofilmy.

Selwood, T., Larsen, B. J., Mo, C. Y., Culyba, M. J., Hostetler, Z. M., Kohli, R. M., … Baugh, S. D. P. (2018). Advancement of the 5-Amino-1-(Carbamoylmethyl)-1H-1,2,3-Triazole-4-Carboxamide Scaffold to Disarm the Bacterial SOS Response. *Front Microbiol* 9, 2961. doi: 10.3389/fmicb.2018.02961

Shan, Y., Brown Gandt, A., Rowe, S. E., Deisinger, J. P., Conlon, B. P., & Lewis, K. (2017). ATP-Dependent Persister Formation in Escherichia coli. *mBio* 8 (1). doi: 10.1128/mBio.02267-16

Sharma, S. V., Lee, D. Y., Li, B., Quinlan, M. P., Takahashi, F., Maheswaran, S., … Settleman, J. (2010). A chromatin-mediated reversible drug--tolerant state in cancer cell subpopulations. *Cell* 141 (1), 69–80. doi: 10.1016/j.cell.2010.02.027

Sherris, J. C. (1986). Problems in in vitro determination of antibiotic tolerance in clinical isolates. *Antimicrob Agents Chemother* 30 (5), 633–637. doi: 10.1128/aac.30.5.633

Simmons, L. A., Cohen, S. E., Foti, J. J., & Walker, G. C. (2008). The SOS Regulatory Network. *EcoSal Plus* 3 (1). doi: 10.1128/ecosalplus.5.4.3

Singletary, L. A., Gibson, J. L., Tanner, E. J., McKenzie, G. J., Lee, P. L., Gonzalez, C., & Rosenberg, S. M. (2009). An SOS-Regulated Type 2 Toxin-Antitoxin System. *Journal of Bacteriology* 191 (24), 7456–7465. doi: 10.1128/jb.00963-09

Smělíková, E., Melter, O., Tkadlec, J., Lichá, I. (2018). Fenomén perzistence bakterií k antibiotikům. *KMIL* 24 (3), 73–81.

Springer, M. T., Singh, V. K., Cheung, A. L., Donegan, N. P., & Chamberlain, N. R. (2016). Effect of clpP and clpC deletion on persister cell number in Staphylococcus aureus. *J Med Microbiol* 65 (8), 848–857. doi: 10.1099/jmm.0.000304

Trastoy, R., Manso, T., Fernandez-Garcia, L., Blasco, L., Ambroa, A., Perez Del Molino, M. L., … Tomas, M. (2018). Mechanisms of Bacterial Tolerance and Persistence in the Gastrointestinal and Respiratory Environments. *Clin Microbiol Rev, 31*(4). doi: 10.1128/CMR.00023-18

Van den Bergh, B., Michiels, J. E., Wenseleers, T., Windels, E. M., Boer, P. V., Kestemont, D., … Michiels, J. (2016). Frequency of antibiotic application drives rapid evolutionary adaptation of Escherichia coli persistence. *Nat Microbiol* 1, 16020. doi: 10.1038/nmicrobiol.2016.20

Vulin, C., Leimer, N., Huemer, M., Ackermann, M., & Zinkernagel, A. S. (2018). Prolonged bacterial lag time results in small colony variants that represent a sub-population of persisters. *Nat Commun* 9 (1), 4074. doi: 10.1038/s41467-018-06527-0

Waldor, M. K., & Friedman, D. I. (2005). Phage regulatory circuits and virulence gene expression. *Curr Opin Microbiol* 8 (4), 459–465. doi: 10.1016/j.mib.2005.06.001

Wang, W., Chen, J., Chen, G., Du, X., Cui, P., Wu, J., … Zhang, Y. (2015). Transposon Mutagenesis Identifies Novel Genes Associated with Staphylococcus aureus Persister Formation. *Front Microbiol* 6, 1437. doi: 10.3389/fmicb.2015.01437

Wang, Y., Bojer, M. S., George, S. E., Wang, Z., Jensen, P. R., Wolz, C., & Ingmer, H. (2018). Inactivation of TCA cycle enhances Staphylococcus aureus persister cell formation in stationary phase. *Sci Rep* 8 (1), 10849. doi: 10.1038/s41598-018-29123-0

Waters, E. M., Rowe, S. E., O'Gara, J. P., & Conlon, B. P. (2016). Convergence of Staphylococcus aureus Persister and Biofilm Research: Can Biofilms Be Defined as Communities of Adherent Persister Cells? *PLoS Pathog* 12 (12), e1006012. doi: 10.1371/journal.ppat.1006012

Wilmaerts, D., Windels, E. M., Verstraeten, N., & Michiels, J. (2019). General Mechanisms Leading to Persister Formation and Awakening. *Trends Genet* 35 (6), 401–411. doi: 10.1016/j.tig.2019.03.007

Windels, E. M., Michiels, J. E., Fauvart, M., Wenseleers, T., Van den Bergh, B., & Michiels, J. (2019). Bacterial persistence promotes the evolution of antibiotic resistance by increasing survival and mutation rates. *ISME J* 13 (5), 1239–1251. doi: 10.1038/s41396-019-0344-9

Winstanley, C., O'Brien, S., & Brockhurst, M. A. (2016). Pseudomonas aeruginosa Evolutionary Adaptation and Diversification in Cystic Fibrosis Chronic Lung Infections. *Trends Microbiol* 24 (5), 327–337. doi: 10.1016/j.tim.2016.01.008

Wood, T. K., Knabel, S. J., & Kwan, B. W. (2013). Bacterial persister cell formation and dormancy. *Appl Environ Microbiol* 79 (23), 7116–7121. doi: 10.1128/AEM.02636-13

Wu, Y., Vulic, M., Keren, I., & Lewis, K. (2012). Role of oxidative stress in persister tolerance. *Antimicrob Agents Chemother* 56 (9), 4922–4926. doi: 10.1128/AAC.00921-12

Xu, T., Wang, X., Meng, L., Zhu, M., Wu, J., Xu, Y., … Zhang, W. (2020). Magnesium Links Starvation-Mediated Antibiotic Persistence to ATP. *mSphere* 5 (1). doi: 10.1128/mSphere.00862-19

Xu, T., Wang, X. Y., Cui, P., Zhang, Y. M., Zhang, W. H., & Zhang, Y. (2017). The Agr Quorum Sensing System Represses Persister Formation through Regulation of Phenol Soluble Modulins in Staphylococcus aureus. *Front Microbiol* 8, 2189. doi: 10.3389/fmicb.2017.02189

Yan, J., & Bassler, B. L. (2019). Surviving as a Community: Antibiotic Tolerance and Persistence in Bacterial Biofilms. *Cell Host Microbe* 26 (1), 15-21. doi: 10.1016/j.chom.2019.06.002

Yee, R., Cui, P., Shi, W., Feng, J., & Zhang, Y. (2015). Genetic Screen Reveals the Role of Purine Metabolism in Staphylococcus aureus Persistence to Rifampicin. *Antibiotics (Basel)* 4 (4), 627–642. doi: 10.3390/antibiotics4040627

Zhang, D., Hu, Y., Zhu, Q., Huang, J., & Chen, Y. (2020). Proteomic interrogation of antibiotic resistance and persistence in Escherichia coli – progress and potential for medical research. *Expert Review of Proteomics* 17 (5), 393-409. doi: 10.1080/14789450.2020.1784731

Zhou, C., Lehar, S., Gutierrez, J., Rosenberger, C. M., Ljumanovic, N., Dinoso, J., … Kamath, A. V. (2016). Pharmacokinetics and pharmacodynamics of DSTA4637A: A novel THIOMAB antibody antibiotic conjugate against Staphylococcus aureus in mice. *MAbs* 8 (8), 1612–1619. doi: 10.1080/19420862.2016.1229722