

Chapter 4

General

Kopp, D. & Sunna, A. (2020). Alternative carbohydrate pathways – enzymes, functions and engineering. *Critical Reviews in Biotechnology* **40**(7), 895-912.

<https://doi.org/10.1080/07388551.2020.1785386>

Murai, K. *et al.* (2020). Optimal ratio of carbon flux between glycolysis and the pentose phosphate pathway for amino acid accumulation in *Corynebacterium glutamicum*. *ACS Synthetic Biology* **9**(7), 1615-1622. <https://doi.org/10.1021/acssynbio.0c00181>

Muscarella, M. E. *et al.* (2020). Trait-based approach to bacterial growth efficiency.

Environmental Microbiology **22**(8), 3494-3504.

<https://sfamjournals.onlinelibrary.wiley.com/doi/abs/10.1111/1462-2920.15120>

Shimizu, K. & Matsuoka, Y. (2019). Redox rebalance against genetic perturbations and modulation of central carbon metabolism by the oxidative stress regulation.

Biotechnology Advances **37**(8), 107441.

<http://www.sciencedirect.com/science/article/pii/S0734975019301417>

EMP pathway

Gil-Gil, T. *et al.* (2020). The inactivation of enzymes belonging to the central carbon metabolism is a novel mechanism of developing antibiotic resistance. *mSystems* **5**(3), e00282-20. <https://msystems.asm.org/content/msys/5/3/e00282-20.full.pdf>

Methylglyoxal bypass

Kammerscheit, X. *et al.* (2020). Methylglyoxal detoxification revisited: Role of glutathione transferase in model cyanobacterium *Synechocystis* sp. strain PCC 6803. *mBio* **11**(4), e00882-20. <https://mbio.asm.org/content/mbio/11/4/e00882-20.full.pdf>

Modified EMP pathways

Holwerda, E. K. *et al.* (2020). Metabolic fluxes of nitrogen and pyrophosphate in chemostat cultures of *Clostridium thermocellum* and *Thermoanaerobacterium saccharolyticum*. *Applied & Environmental Microbiology* **86**(23), e01795-20.
<https://aem.asm.org/content/aem/86/23/e01795-20.full.pdf>

Jaffe, A. L. *et al.* (2020). The rise of diversity in metabolic platforms across the Candidate Phyla Radiation. *BMC Biology* **18**, 69. <https://doi.org/10.1186/s12915-020-00804-5>

Shakir, N. A. *et al.* (2020). Biochemical characterization of a highly active ADP-dependent phosphofructokinase from *Thermococcus kodakarensis*. *Journal of Bioscience & Bioengineering* **129**(1), 6-15.
<http://www.sciencedirect.com/science/article/pii/S1389172319304475>

Gluconeogenesis

Nguyen, A. D. *et al.* (2020). Metabolic role of pyrophosphate-linked phosphofructokinase *pfk* for C₁ assimilation in *Methylovulum microbium alcaliphilum* 20Z. *Microbial Cell Factories* **19**, 131. <https://doi.org/10.1186/s12934-020-01382-5>

HMP pathway

Machelart, A. *et al.* (2020). Convergent evolution of zoonotic *Brucella* species toward the selective use of the pentose phosphate pathway. *Proceedings of the National Academy of Sciences of the USA* **117**(42), 26374-26381.

<https://www.pnas.org/content/pnas/117/42/26374.full.pdf>

ED and modified ED pathways

Li, J. *et al.* (2020). A sulfoglycolytic Entner-Doudoroff pathway in *Rhizobium leguminosarum* bv. trifolii SRDI565. *Applied & Environmental Microbiology* **86**(15), e00750-20. <https://aem.asm.org/content/aem/86/15/e00750-20.full.pdf>

Okano, K. *et al.* (2020). In vitro reconstitution of non-phosphorylative Entner–Doudoroff pathway for lactate production. *Journal of Bioscience & Bioengineering* **129**(3), 269-275. <https://doi.org/10.1016/j.jbiosc.2019.09.010>

PK pathways

Bachhar, A. & Jablonsky, J. (2020). A new insight into role of phosphoketolase pathway in *Synechocystis* sp. PCC 6803. *Scientific Reports* **10**, 22018.

<https://doi.org/10.1038/s41598-020-78475-z>

Metabolic analysis