**Q&A homework**

Q1: With regards to transcriptomic profiling, explain and discuss the pros and cons of 3rd generation sequencing using the Nanopore technology.

Q2: The arginine regulatory protein of the bacteria *Studentis* *Liegeosa*, ArgR, is a regulatory protein that is essential for regulation of the operon that encode the 3 enzymes of the arginine metabolic pathway. Synthesis of Arginine is a 3 steps pathway, each of which is catalyzed by one specific enzyme encoded by the operon. Bacteria only produce arginine when the intracellular level of arginine is low, and stop producing it when there is plenty of arginine. Describe a gene regulatory mechanism that would be compatible with such a regulation.

Q3: Explain how and why the Y2H assay, despite recent technological improvements is still considered as giving a high proportion of "false positives".

**Literature**

Yadi Zhou et al.. Network-based drug repurposing for novel coronavirus 2019-nCoV/SARS-CoV-2. Cell Discovery 2020 volume 6, Article number: 14

Hassan M.A et al., Integration of Transcriptome and Metabolome Provides Unique Insights to Pathways Associated With Obese Breast Cancer Patients. Frontiers in Oncology, 2020 (PMID: 32509585).

Choi SG, Olivet J. Maximizing binary interactome mapping with a minimal number of assays. Nat Commun. 2019 Aug 29;10(1):3907.

Fan J et al., Single-cell transcriptomics in cancer: computational challenges and opportunities, Experimental & Molecular Medicine, 52:1452-1465.

Khong A et al., The Stress Granule Transcriptome Reveals Principles of mRNA Accumulation in Stress Granules. Molecular Cell. 2017, 68(4):808-820.