



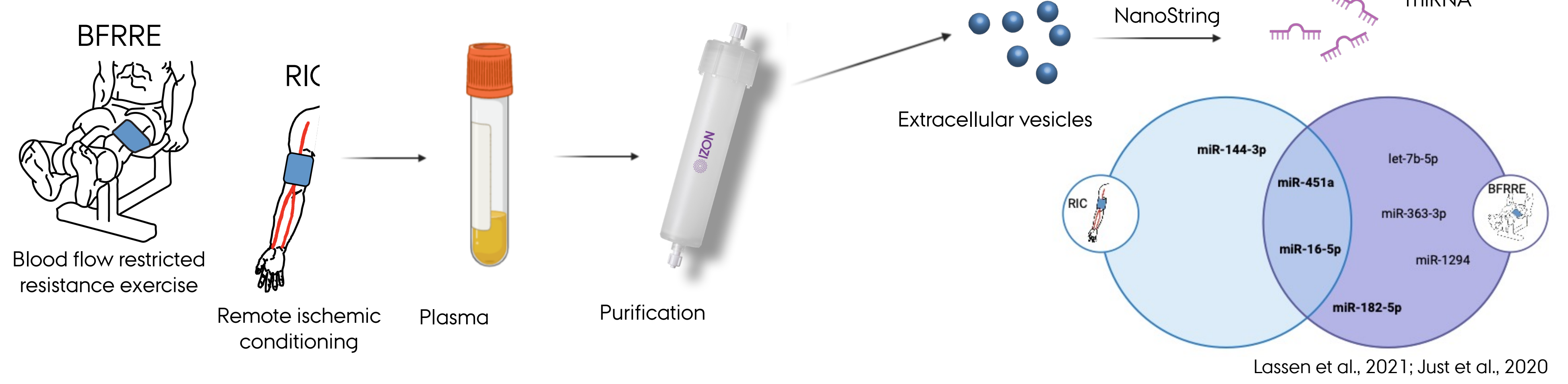
K. T. Stenz^{1,2}, J. Just^{1,3}, Z. Huang⁴, T. R. Lassen⁵, K. Vissing⁶, X. Wang^{4,7}, K. R. Drasbek^{1,2}

¹Center of Functionally Integrative Neuroscience, Department of Clinical Medicine, Aarhus University, Aarhus; ²Sino-Danish College (SDC), University of Chinese Academy Sciences, Beijing, China; ³Department of Molecular Medicine, Aarhus University Hospital, Aarhus; ⁴Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Beijing, China; ⁵Department of Cardiology, Aarhus University Hospital, Aarhus; ⁶Department of Public Health, Aarhus University, Aarhus, Denmark; ⁷School of Future Technology, University of Chinese Academy of Sciences, Beijing, China.

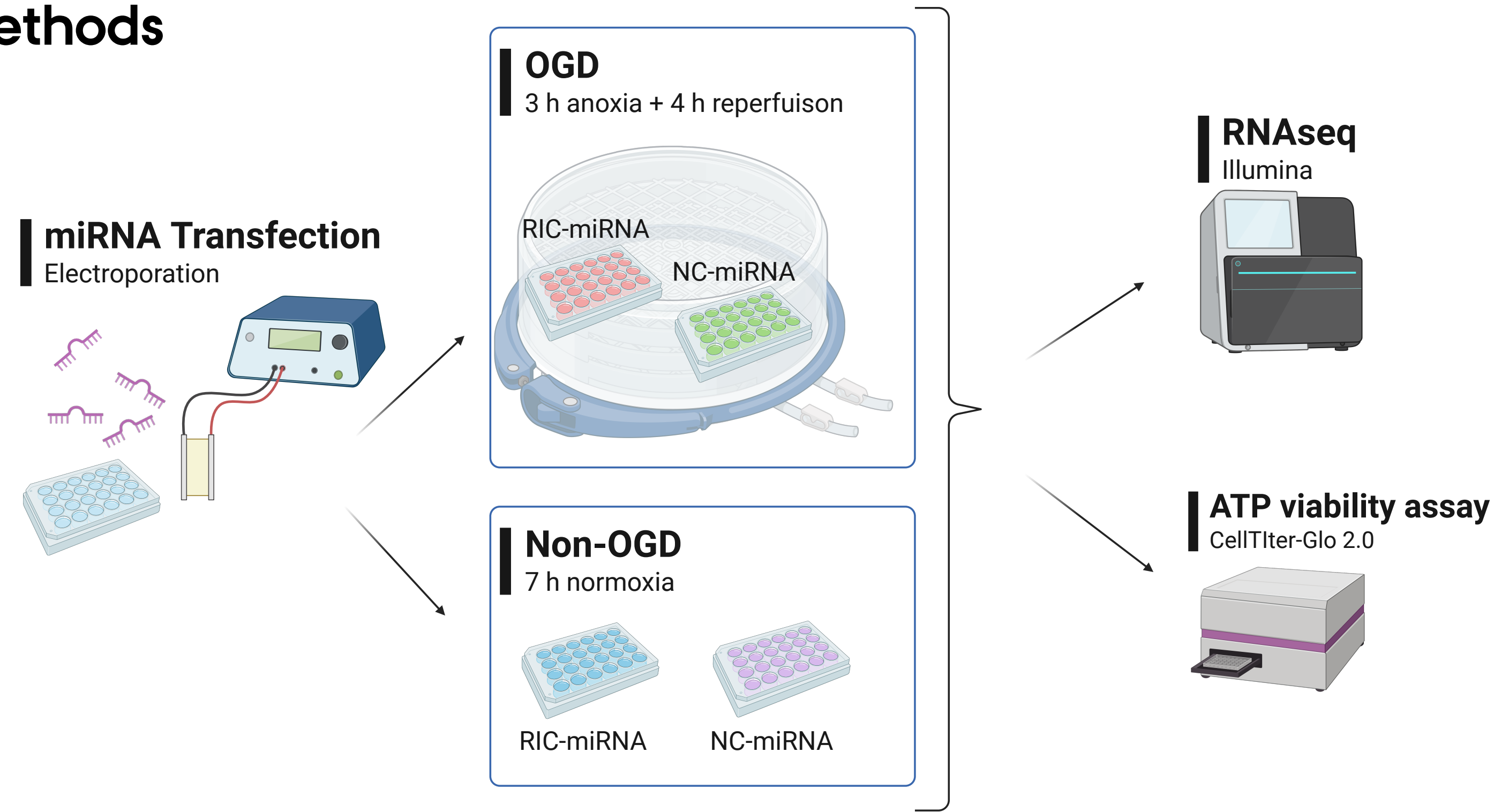
Background

- **Acute ischemic stroke (AIS):** Treatment window of 4.5-6 hours.
- Extracellular vesicles (EVs) from Remote ischemic conditioning (RIC) and blood flow restricted resistance exercise (BFRRE) protect human brain microvascular endothelial cells (HBMECs) from ischemia-reperfusion (I/R) injury
- **The microRNA (miRNA)** from EVs alter gene expression at targets cells and may be the driver of protection
- Model: **HBMECs** exposed to oxygen-glucose deprivation (OGD) to model ischemic stroke *in vitro*

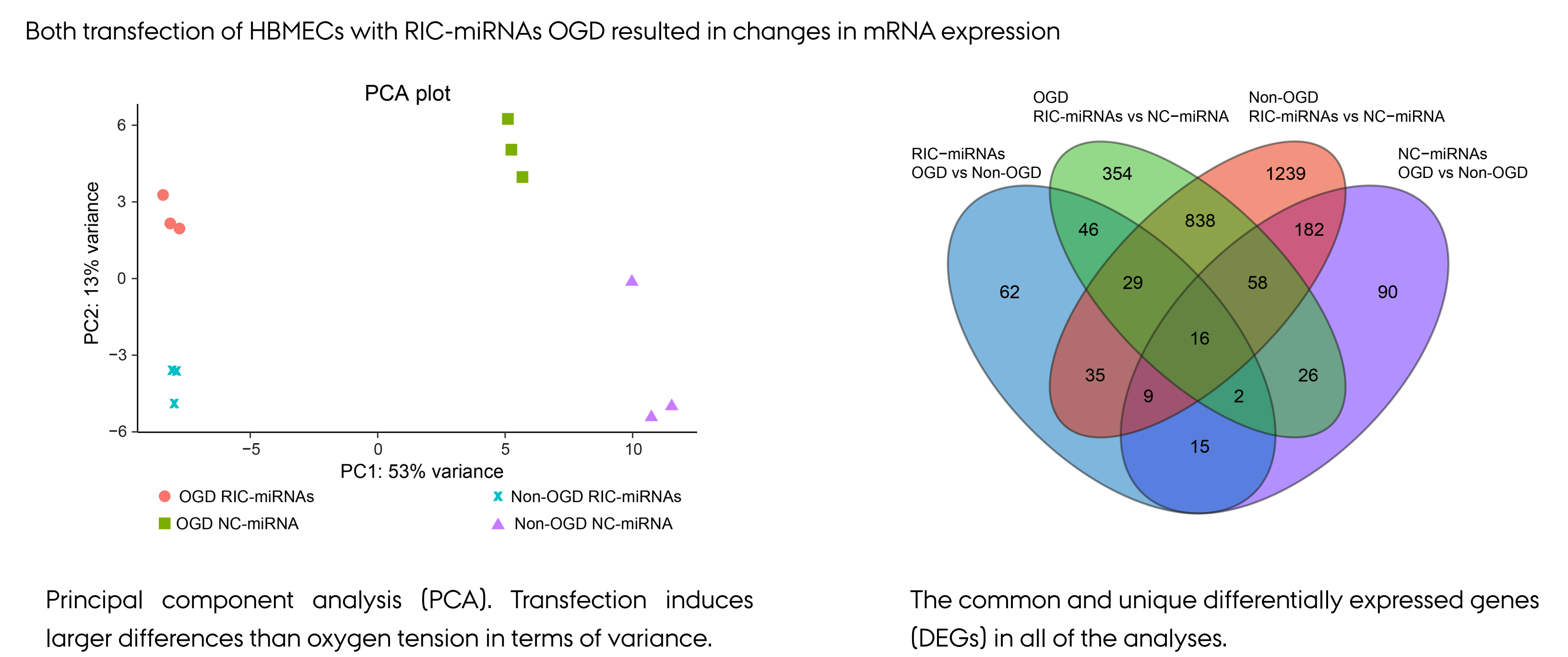
Study Outline



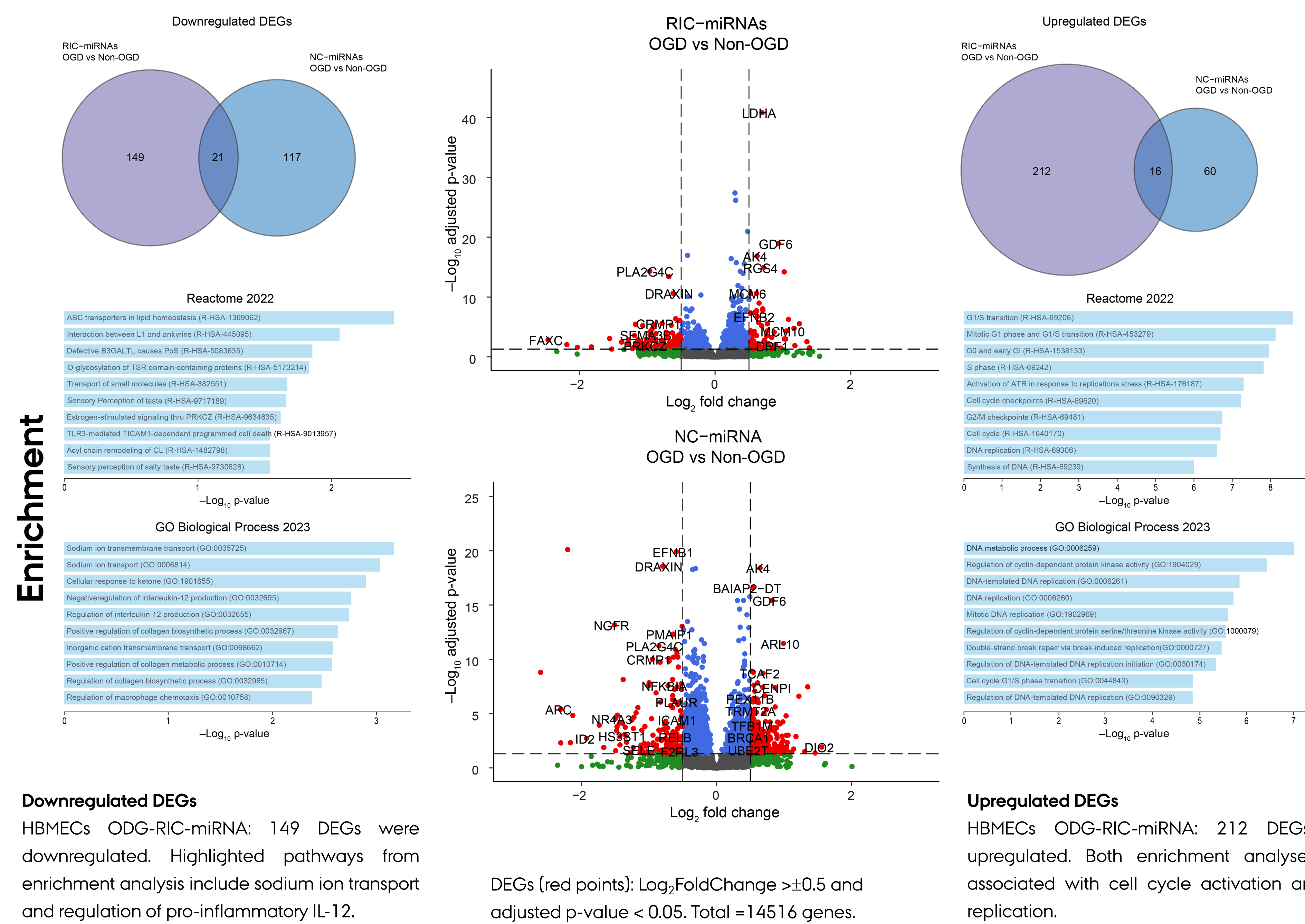
Methods



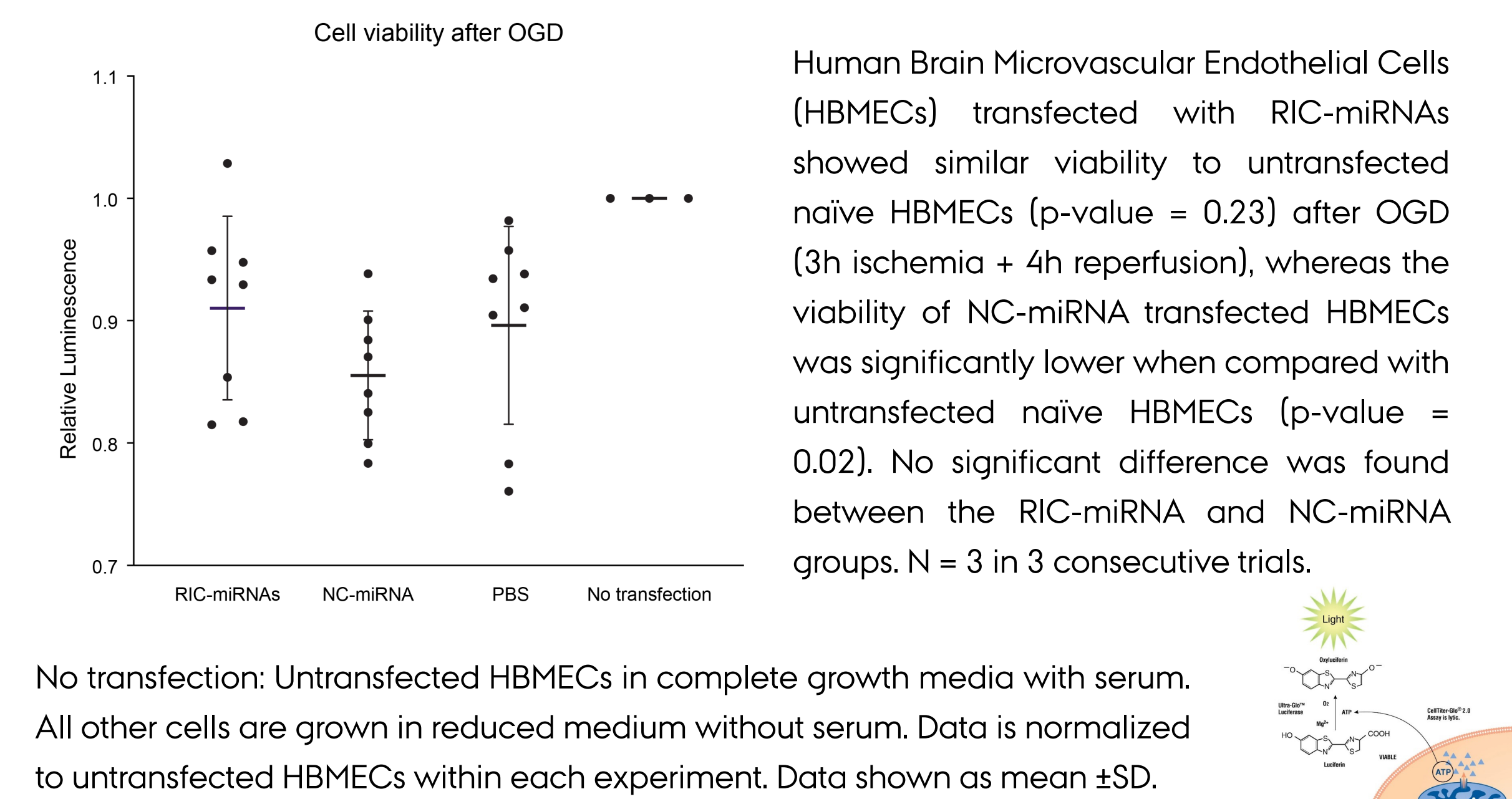
Gene profile change due to RIC-miRNA transfection and OGD



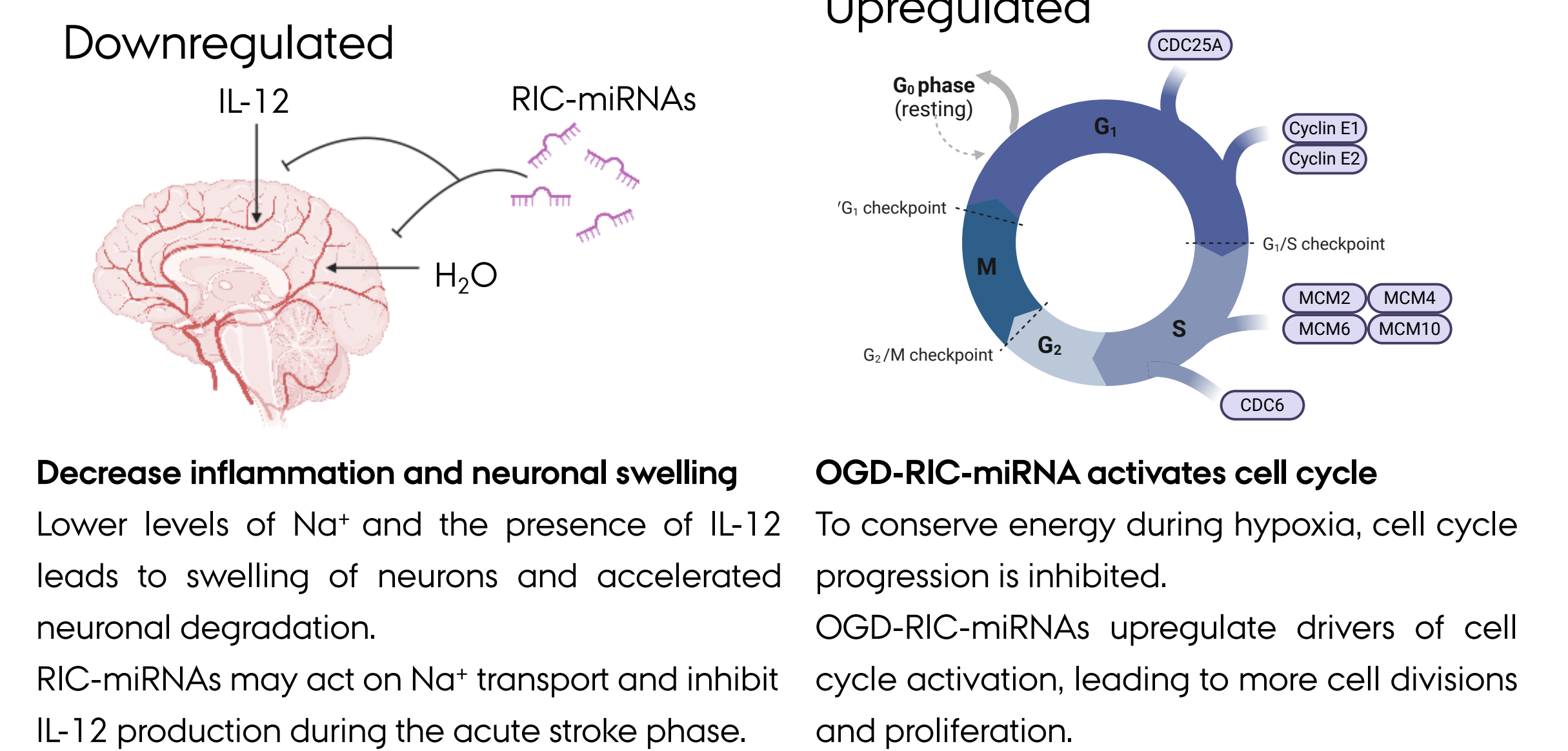
OGD-RIC-miRNAs targets neuronal degradation and cell cycle processes



RIC-miRNAs effect in I/R injury *in vitro*



Discussion



Conclusion

- RIC-miRNAs introduce many mRNA changes in HBMECs both at OGD and normoxic conditions
- RIC-miRNAs target ion transport and inhibit IL-12 production, while the derivative effects of the RIC-miRNAs at OGD conditions lead to increased cell cycle activation and DNA replication
- This point towards an early response to the RIC-miRNAs from the downregulated genes, while the upregulated genes are involved in beneficial pathways with a longer horizon.
- RIC-miRNAs help HBMECs return to normal physiological conditions after OGD
- These pathways may be targets for new therapeutic avenues

Funding and references

novo nordisk fonden

SDC
The university partnership
Denmark - China

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Lassen et al., 2021 DOI: 10.1007/s00395-021-00856-w
Just et al., 2020 DOI: 10.1038/s41598-020-62456-3
Figures: Created with biorender.com