

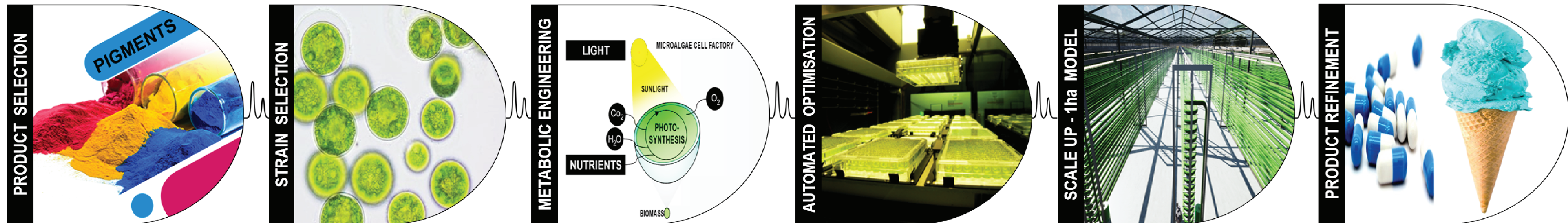
INTEGRATED ANALYSES OF PHOTOTROPHIC BIOMASS PRODUCTION AND PIGMENT ACCUMULATION IN MICROALGAE AND CYANOBACTERIA

Charu Deepika*, Juliane Wolf, Ben Hankamer
Institute of Molecular Bioscience, The University of Queensland, QLD 4072, Brisbane, Australia

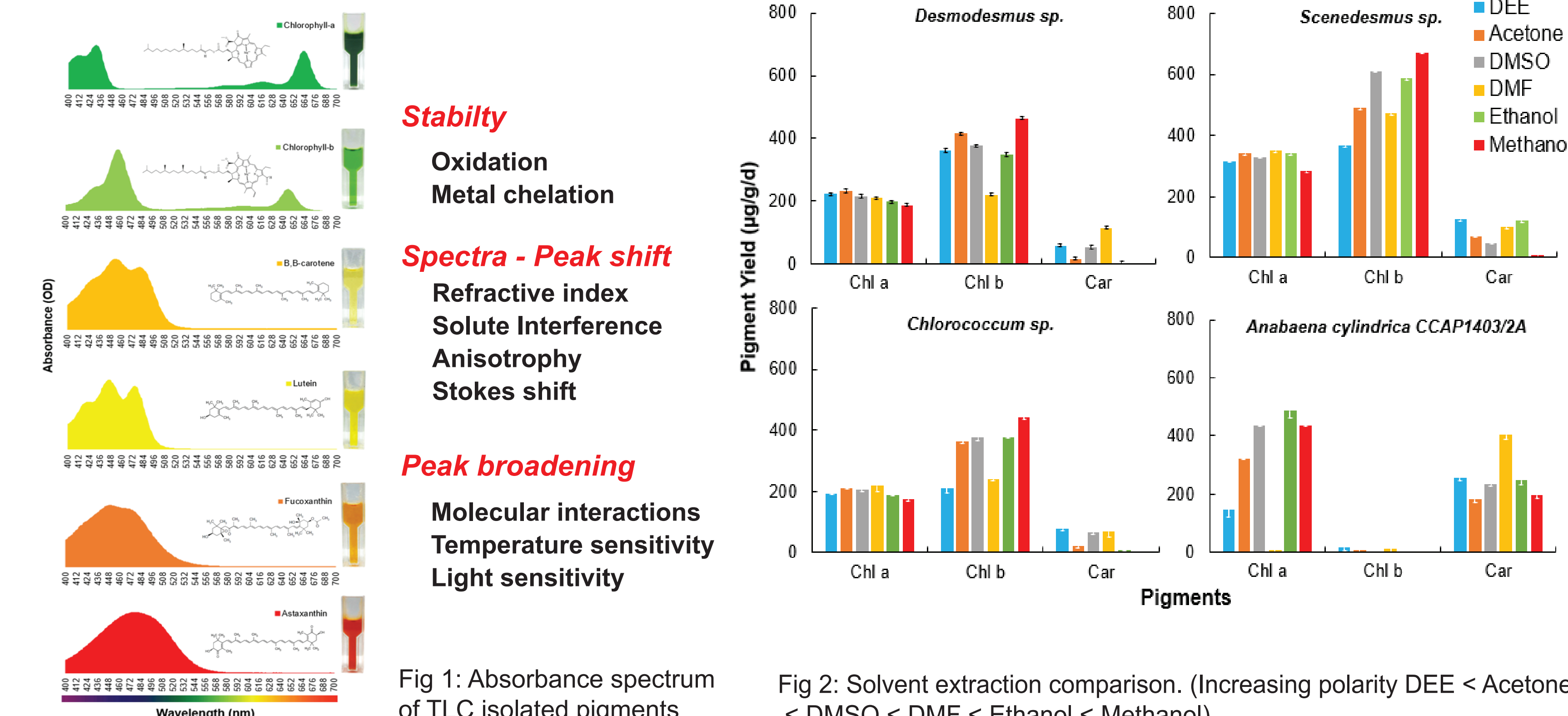
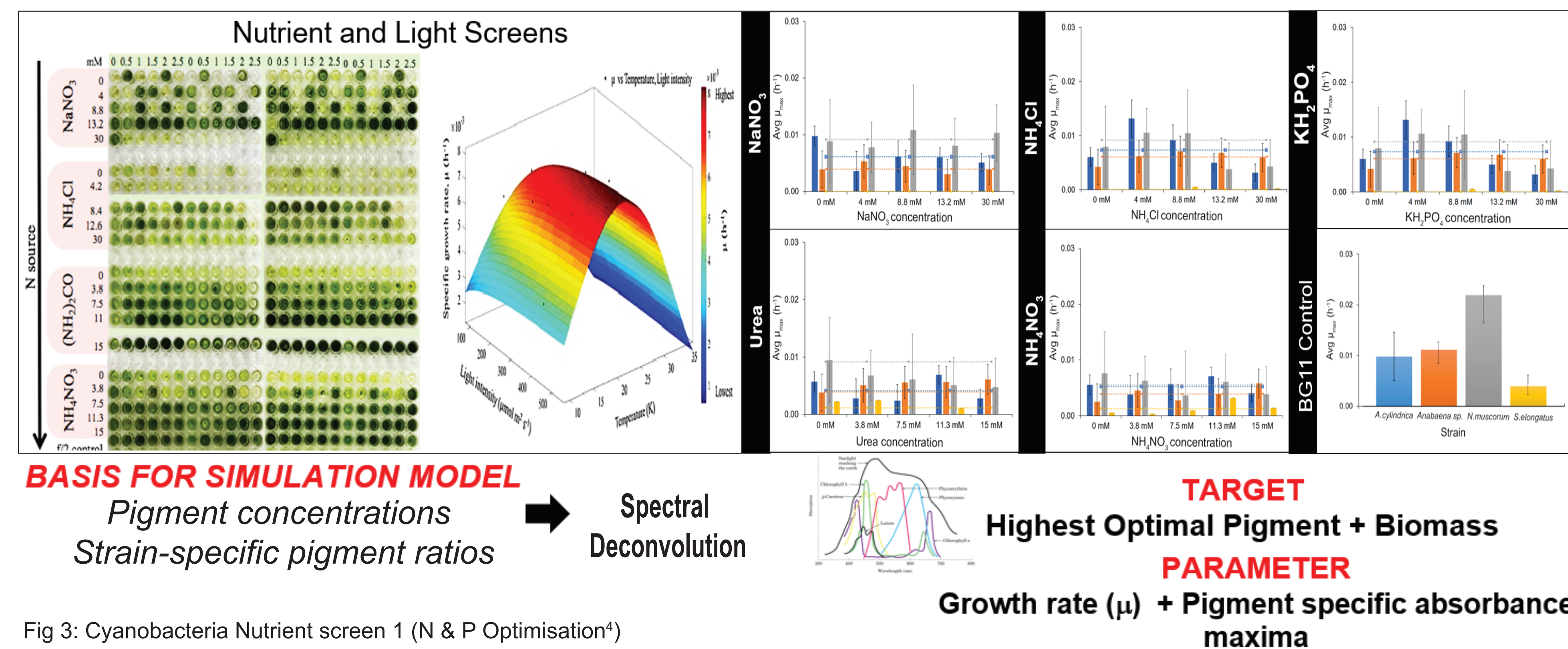
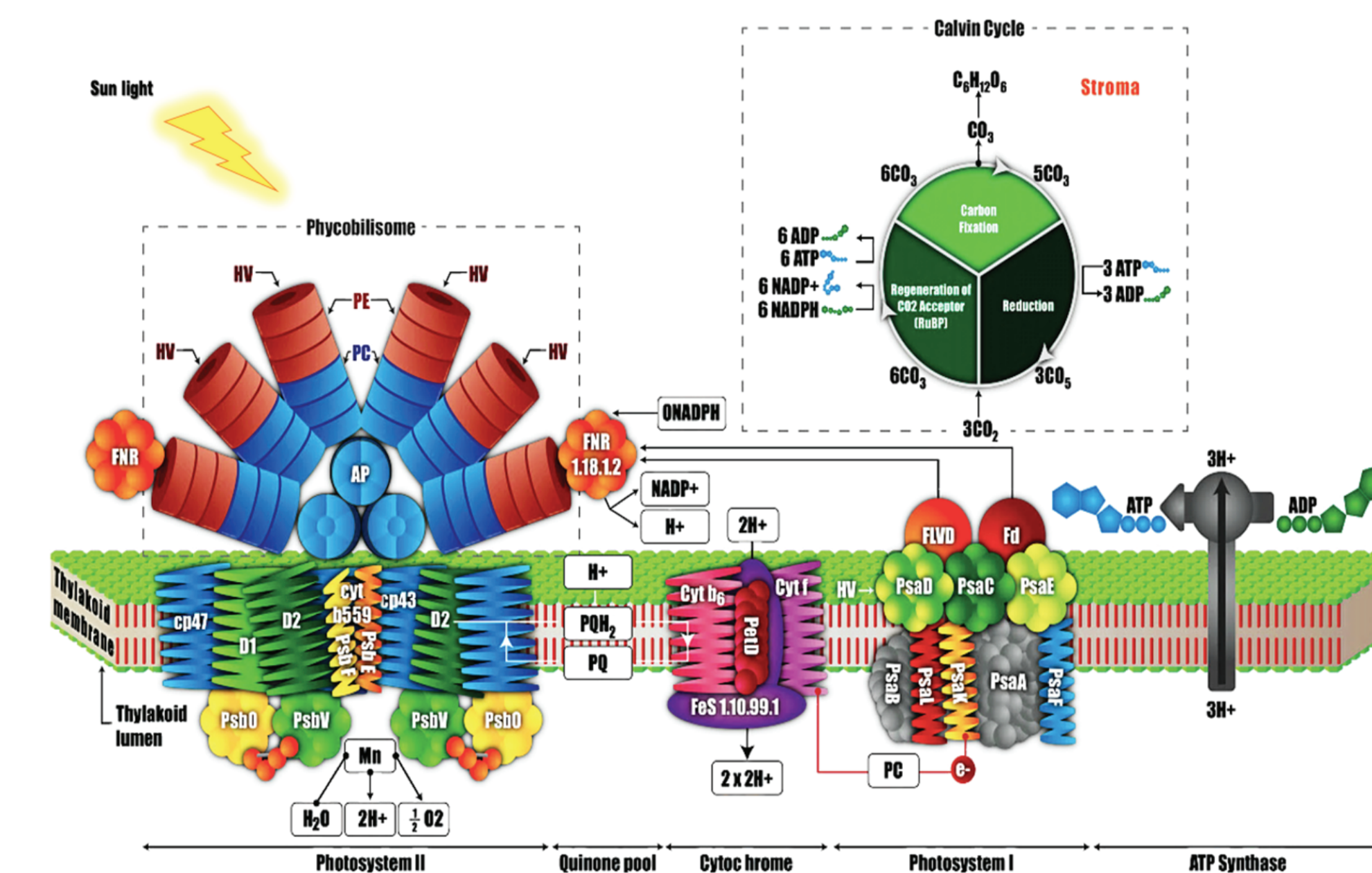
BACKGROUND AND GOALS

- Microalgae are robust production platforms for high-value bioproducts.
- Natural pigments are environmentally friendly¹.
- High growth rates and increased biosafety.
- Circular economy and triple bottom line approach².
- Microalgae biorefineries will contribute to meet 12 UN SDG's³.

METHODOLOGY



RESULTS



- CHLOROPHYLLS
- CAROTENOIDS
- PHYCOBILIPROTEINS

REFERENCES

- Britton, G., The biochemistry of natural pigments. 1983: Cambridge University Press.
- European Commission, Closing the loop—An EU action plan for the Circular Economy. Belgium, 2015.
- Kim, R.C., Can creating shared value (CSV) and the United Nations Sustainable Development Goals (UN SDGs) collaborate for a better world? Insights from East Asia. Sustainability. 2018. 10(11): p. 4128.
- Wolf, J., et al., High-throughput screen for high performance microalgae strain selection and integrated media design. Algal Research. 2015. 11: p. 313-325.

ACKNOWLEDGEMENTS

Thank you Dr. John roles and Fred Fialho Leandro Alves Teixeira for the modelling figures. Authors thank Australian Research Council (Linkage Grant LP180100269) and UQ international scholarship.

CENTRE FOR SOLAR
BIOTECHNOLOGY

THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

IMB



CONCLUSION

Solar-driven photosynthetic microalgae and cyanobacteria offer significant new routes for the production of sustainable natural pigments for use in wide range of industries.

Advancements in applied biotechnology will help fast-track sustainable microalgae production platforms (circular bioeconomy).

FUTURE PERSPECTIVES

- Modelling sustainable algae coproduction platforms - Techno Economic Analysis.
- Sequential extraction techniques

