

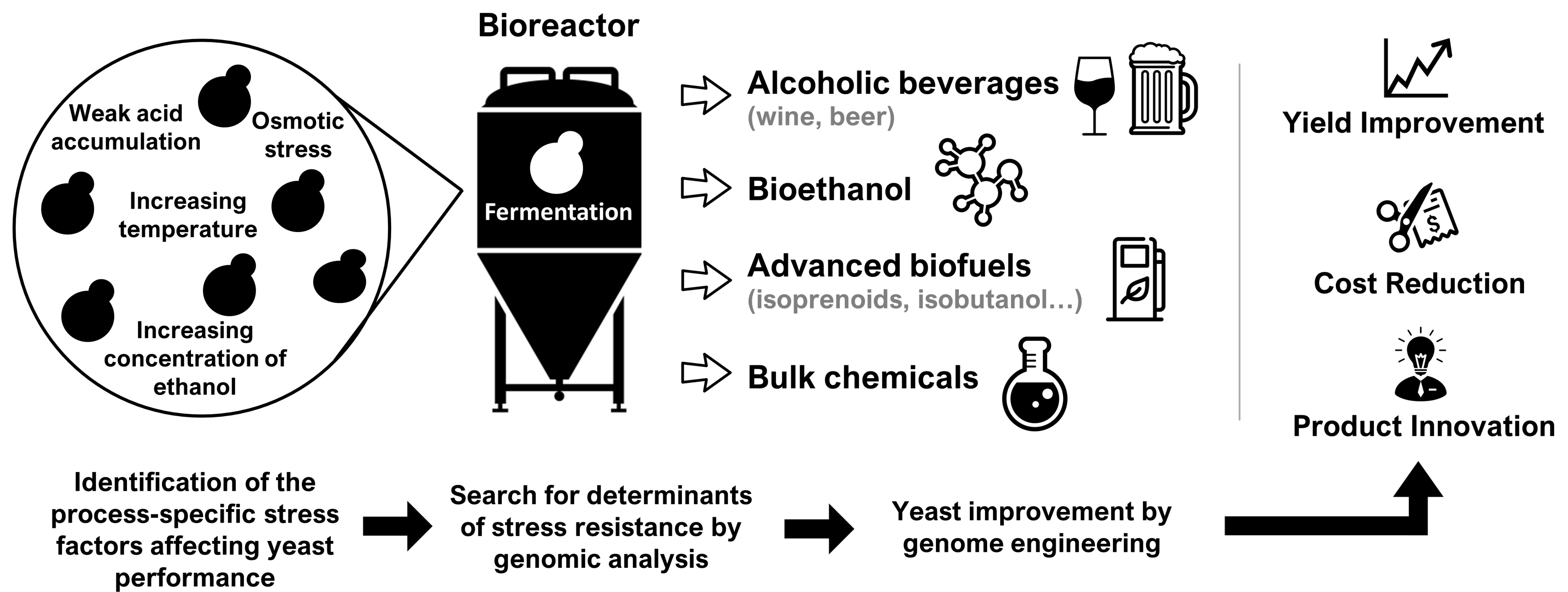
PhD Open Days



Overexpression of the yeast ABC transporter Pdr18 as a promising strategy for industrial yeast genome improvement

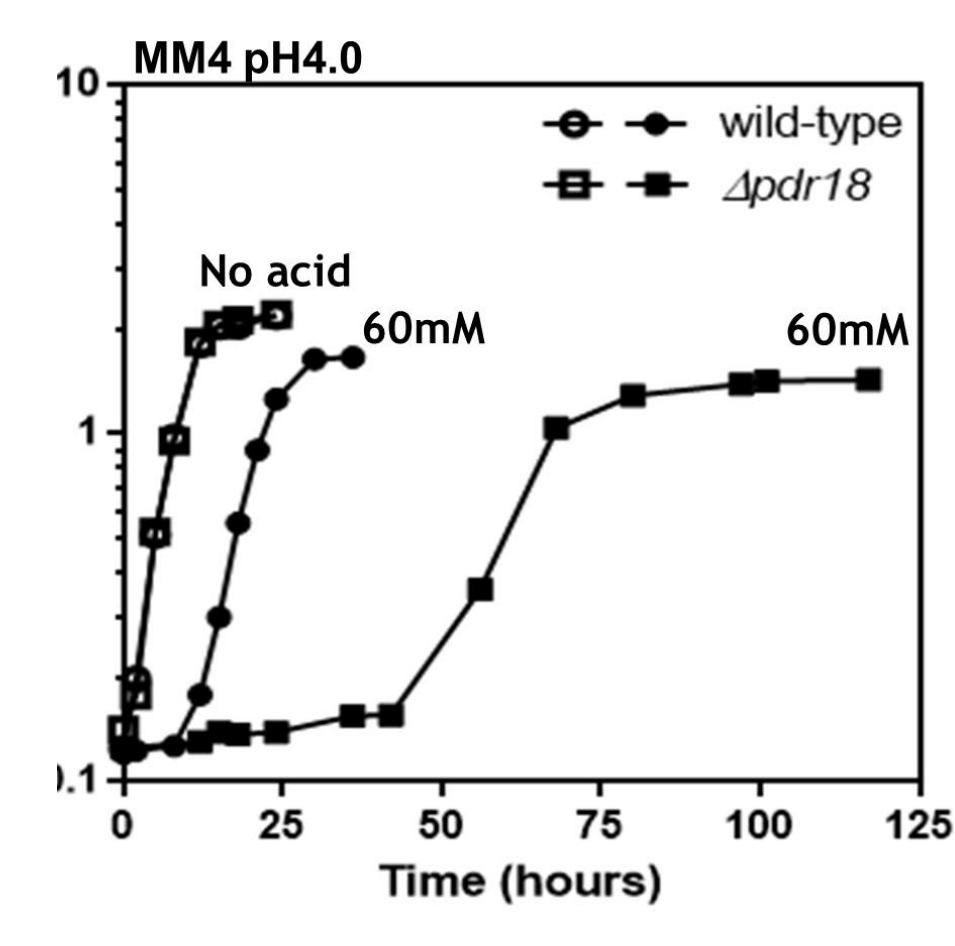
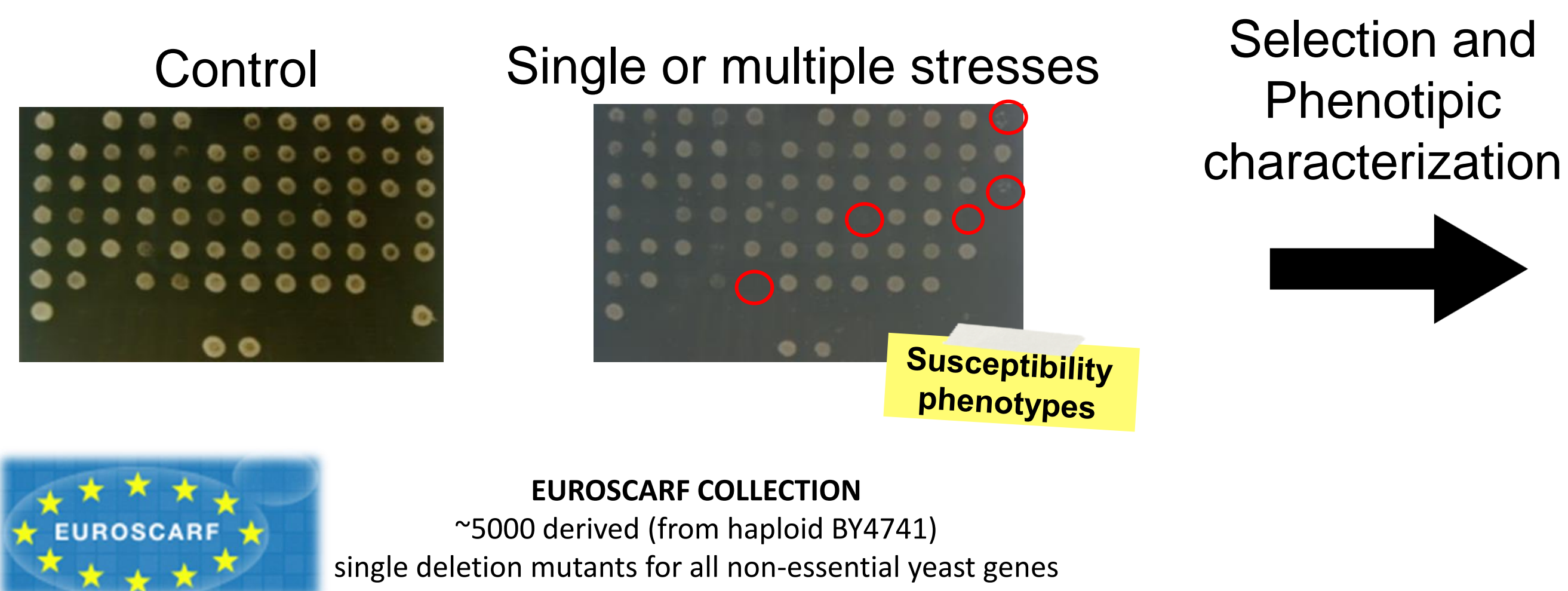
PhD in Biotechnology and Biosciences

CLÁUDIA SOFIA PIRES GODINHO (claudia.godinho@tecnico.ulisboa.pt)

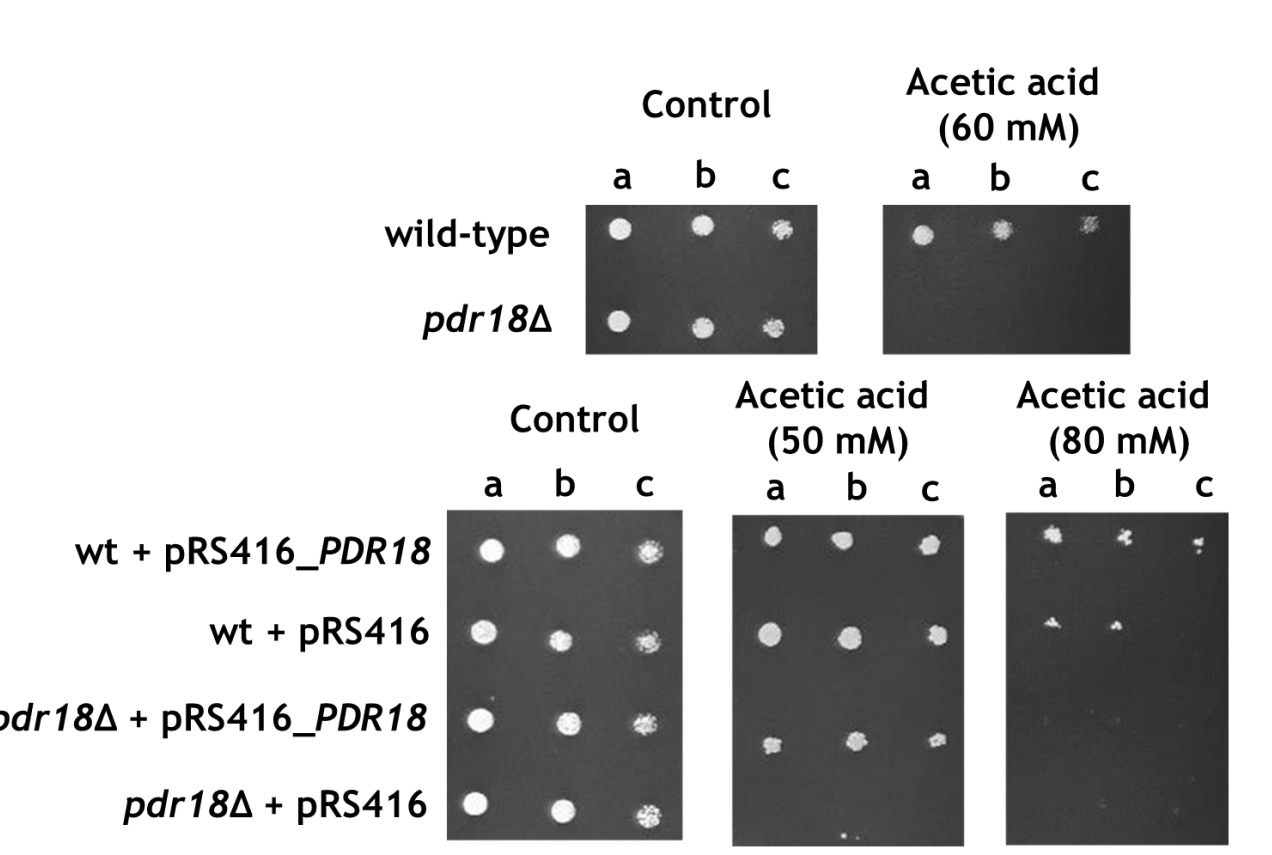


Genome-wide identification of determinants for yeast stress resistance

The ABC transporter Pdr18 is an acetic acid resistance determinant

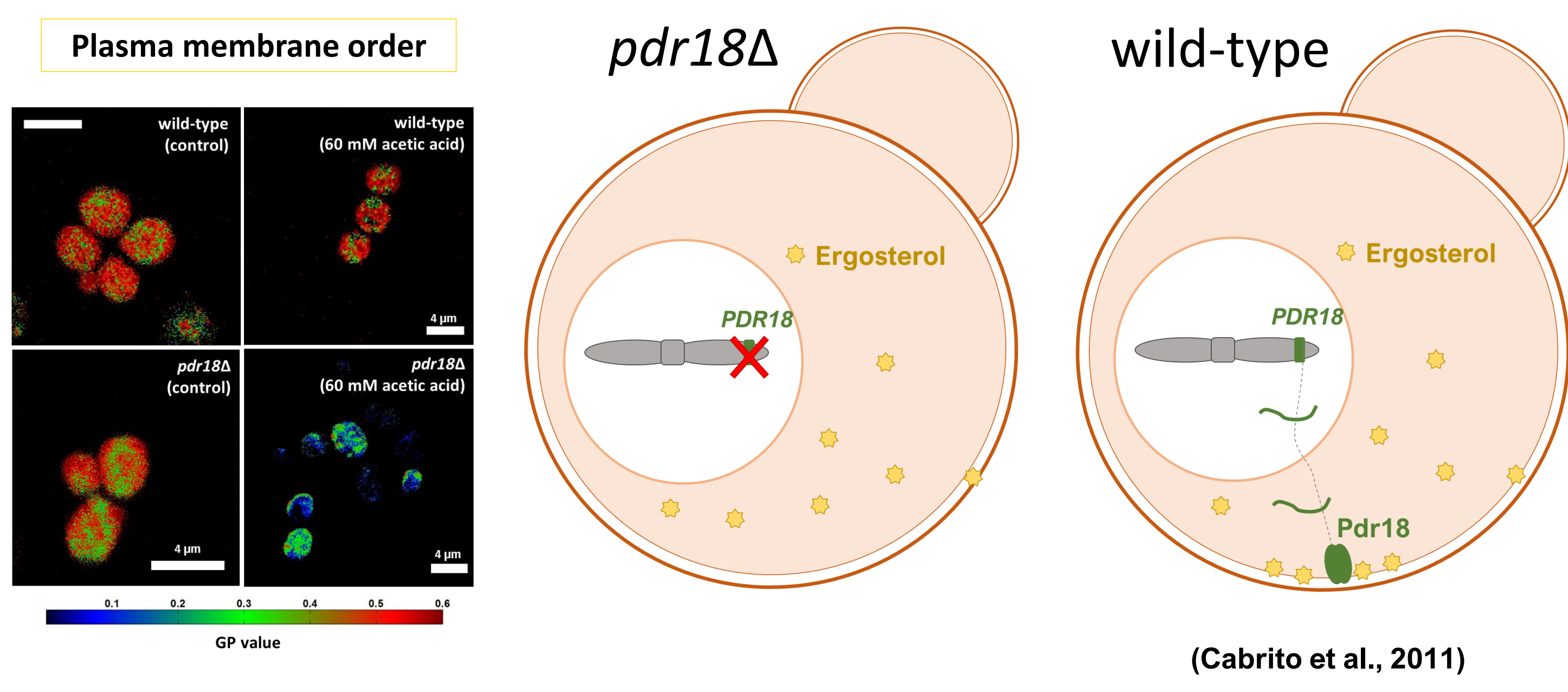


Deletion of the *PDR18* gene leads to an extended lag-phase of approximately 40 hours, when the medium is supplemented with 60 mM acetic acid.



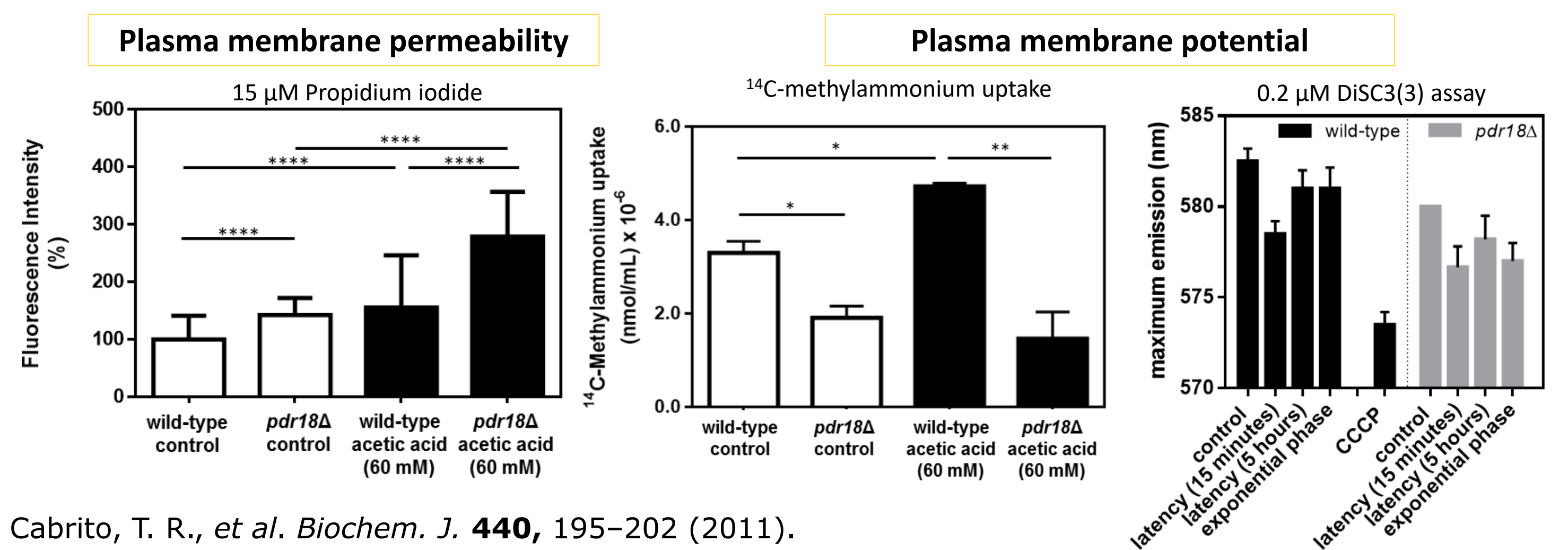
PDR18 expression leads to a more ordered and less permeable yeast plasma membrane, essential for multiple stress resistance

Yeast improvement by genome engineering



Overexpression of *PDR18* gene is proposed to lead to a highly ordered and ergosterol-enriched yeast plasma membrane, resulting in a more efficient barrier against the diffusional entrance of toxic compounds.

Further improvement of industrial strains used nowadays, using CRISPR-Cas9 technology



Acknowledgements



The work presented regarding plasma membrane properties was done in collaboration with Fábio Fernandes and Sandra Pinto from Centro de Química-Física Molecular, Institute of Nanoscience and Nanotechnology, Instituto Superior Técnico. The yeast improvement section is currently under progress in collaboration with Prof. Dr. Johan Thevelein and Dr. Maria Foulquié-Moreno from Vlaams Instituut Voor Biotechnologie, Katholieke Universiteit Leuven. Funding received by iBB from Programa Operacional Regional de Lisboa 2020 (Project N.007317) and FCT-Fundação para a Ciência e a Tecnologia (UID/BIO/04565/2013) is acknowledged, as well as a PhD fellowship to CPG (SFRH/BD/92252/2013).