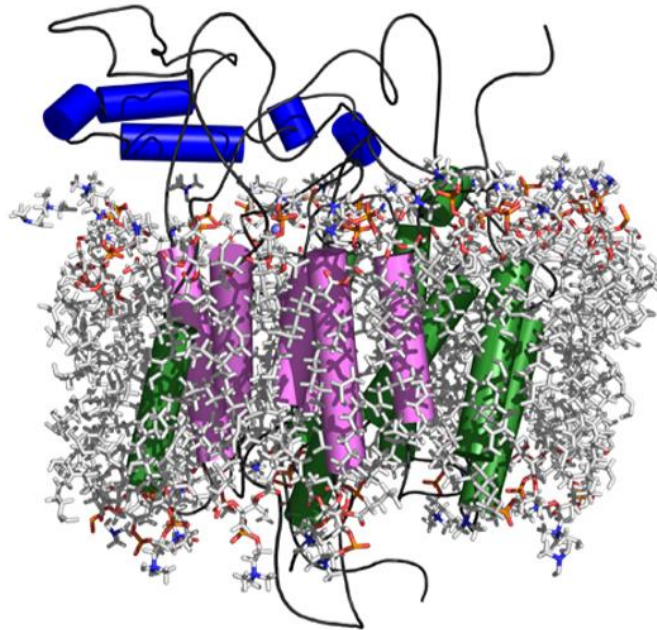


Structural and functional properties of a borate efflux transporter from barley



by

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A dissertation submitted to the University of Adelaide in accordance with the requirements of the degree of PhD in the Faculty of Science, School of Agriculture, Food and Wine

May 2015

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ABBREVIATIONS

AE	Anion Exchanger
AFM	Atomic Force Microscopy
AQP	Aquaporin
ATP	Adenosine triphosphate
B	Boron element or boron as a shorthand for boron-containing compounds
BA	Boric Acid
BCECF	Biscarboxyfluorescein
BMGY	Buffered glycerol-complex medium
BMMY	Buffered methanol-complex medium
BTP	Bis-Tris Propane
CECF	Continuous-Exchange Cell Free
CF	Cell-Free
cRNA	Capped RNA
Da	Dalton
DIDS	4'-Diisothiocyano-2,2'-stilbenedisulfonic acid
DOPC	Dioleoylphosphocholine
DMPC	1, 2-Dimyristoyl-sn-glycero-3-phosphocholine
EIS	Electrochemical Impedance Spectroscopy
ESI	Electrospray Ionisation
FM	Feeding Mixture
GFP	Green Fluorescent Protein
GUV	Giant Unilamellar Vesicles
IMP	Integral Membrane Protein
MD	Molecular Dynamics
MIP	Major Intrinsic Protein
MP	Membrane Protein
NIP	Nodulin Intrinsic Membrane Protein
NMR	Nuclear Magnetic Resonance
Osmol	Osmolarity
PAGE	Polyacrylamide Gel Electrophoresis
PIP	Plasma Membrane Intrinsic Protein
PCR	Polymerase Chain Reaction

PD	Potential Difference
P_o	Open probability of channel
POPC	1-Palmitoyl-2-oleoyl- <i>sn</i> -glycero-3-phosphocholine
POPE	1-Palmitoyl-2-oleoyl- <i>sn</i> -glycero-3-phosphoethanolamine
POPG	1-Palmitoyl-2-oleoyl- <i>sn</i> -glycero-3-phospho-1'-rac-glycerol
QTL	Quantitative Trait Locus
RM	Reaction Mixture
SAXS	Small-Angle X-ray Scattering
SDS	Sodium Dodecyl Sulphate
SMA	Styrene Maleic Anhydride
3D	Three-Dimensional
tBLM	tethered Bilayer Lipid Membrane
TEV	Tobacco Etch Virus
TEVC	Two-Electrode Voltage Clamp
TLC	Thin-Layer Chromatography
TIP	Tonoplast Intrinsic Protein
WG	Wheat Germ
WIB	Western Immuno-Blot

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