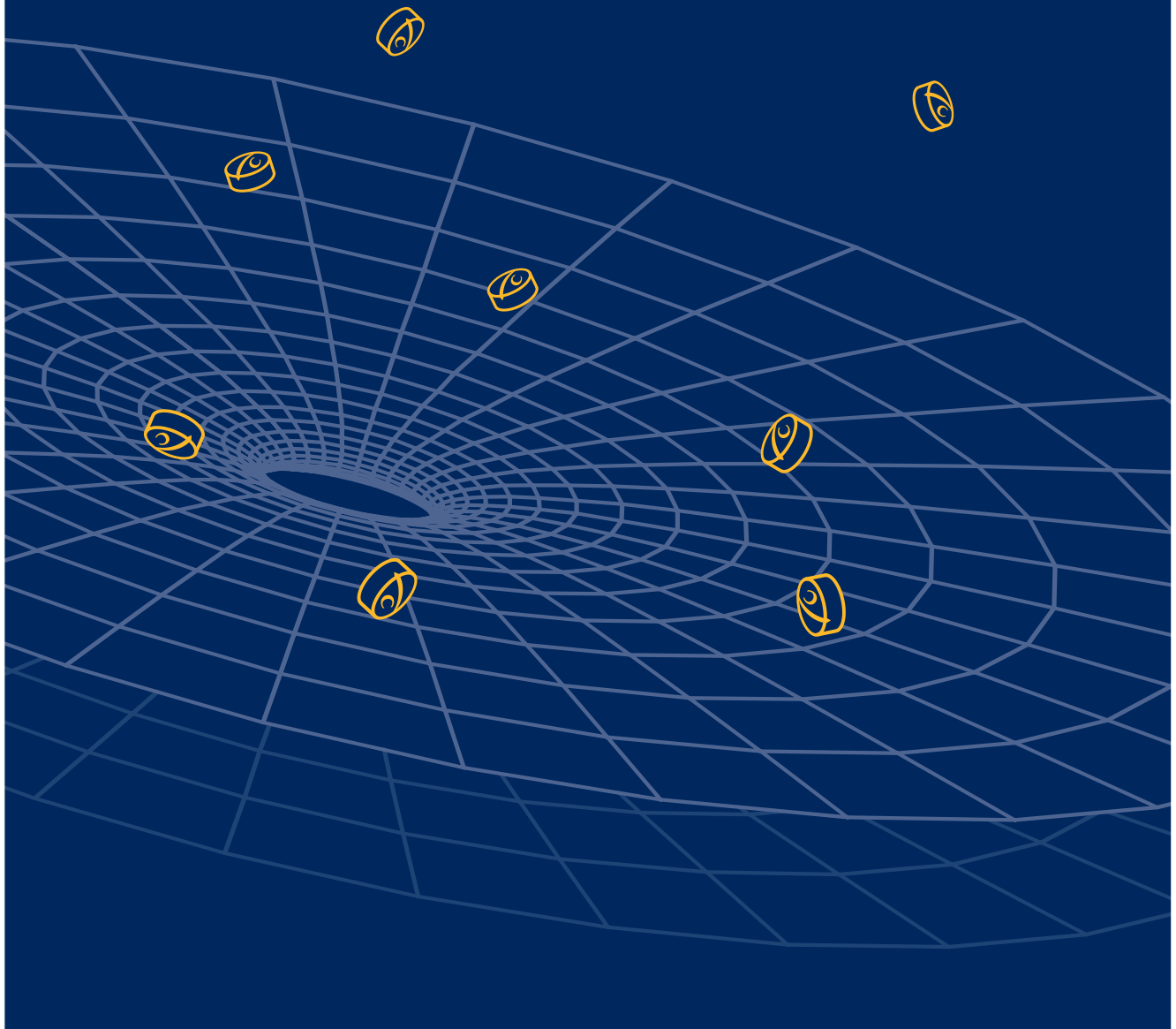


Ascorbate and its interaction with plasma membrane redox systems

Martijn M. van Duijn



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PROEFSCHRIFT

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Note to the cover:

The redox systems described in this thesis form a gate in the plasma membrane of cells, that allows electrons from ascorbate (vitamin C) to cross to the exterior face of the cell. The cover symbolizes such a passageway in the membrane bilayer.

*"The great tragedy of science --
the slaying of a beautiful hypothesis by an ugly fact."*

Thomas Huxley

Voor Judith

Abbreviations

AFR	ascorbate free radical
Asc	L-ascorbic acid
DHA	dehydroascorbic acid
DiSC ₃ (5)	3,3'-dipropylthiadecarbocyanine iodide
DTPA	diethylenetriaminepentaacetic acid
EDTA	ethylenediaminetetraacetic acid
ESR	electron spin resonance
FIC	ferricyanide
FOC	ferrocyanide
GSH	glutathione
HPLC	high performance liquid chromatography
Ni(en) ₃ ²⁺	tris(ethylenediamine)nickel(II) chloride
PBS	phosphate buffered saline
<i>p</i> CMBS	<i>para</i> -chloromerucibenzenesulfonic acid
RDA	recommended dietary allowance
ROS	reactive oxygen species
TEMPO	2,2,6,6-tetramethylpiperidine-N-oxyl
TEMPOL	4-hydroxy-2,2,6,6-tetramethylpiperidine-N-oxyl