



TO MAGNIFICA RETTRICE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE: 7002

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Bioscienze**

Scientist- in - charge: **PROFESSOR ANNA MORONI**

DR WILLIAM CARROLL, PHD

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	CARROLL
Name	WILLIAM

PRESENT OCCUPATION

Appointment	Structure
FINISHING PHD STUDENT (SUPERVISOR: PROFESSOR MICHAEL BLATT)	UNIVERSITY OF GLASGOW, LABORATORY OF PLANT PHYSIOLOGY AND BIOPHYSICS

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	BSC PLANT SCIENCE	UNIVERSITY OF SHEFFIELD	2019
Specialization	-	-	-
PhD	MOLECULAR BIOSCIENCES	UNIVERSITY OF GLASGOW	2024
Master	-	-	-
Degree of medical specialization	-	-	-
Degree of European specialization	-	-	-
Other	-	-	-

REGISTRATION IN PROFESSIONAL ASSOCIATIONS



Date registration	of Association	City
-	-	-

FOREIGN LANGUAGES

Languages	level of knowledge
ENGLISH	FIRST LANGUAGE

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
-	-
-	-
-	-

TRAINING OR RESEARCH ACTIVITY

I have extensive research experience in ion channel structure-function relationships and modification of ion channel properties in the field of bioengineering. My PhD research specifically focused on voltage-gated K⁺ channels of *Arabidopsis thaliana*, involving structure-guided analysis and channel engineering to modify voltage-dependent gating properties. Key experimental techniques included electrophysiological recording and analysis (primarily two-electrode voltage clamp), protein structure analysis, protein modeling, and a broad range of molecular biology and cloning techniques. Additionally, I have experience in confocal microscopy and specialised molecular biology methods, such as in vitro kinase assays and yeast-based split-ubiquitin system assays for assessment of protein-protein interactions. My research findings, focusing on the C-linker of plant potassium channels, were included in a plant biotechnology patent in 2023 (23.700) and findings are to be published shortly in *Nature Communications*.

PROJECT ACTIVITY

Year	Project
2020-2024	SYNTHETIC BIOLOGY FOR ENHANCING CROP WATER USE EFFICIENCY

PATENTS

Patent
20.665 & 23.700: GORK SUPER-SYNCHRONISED STOMATAL CONTROL APPROACHABLE BY GENE EDITING ENHANCED PHOTOSYNTHESIS AND GROWTH WHILE PRESERVING WATER STATUS (2XWUE) MY RESEARCH WAS INCLUDED IN AN UPDATE OF PATENT 20.665 (23.700) FOR ION CHANNEL ENGINEERING CONTRIBUTING TO IMPROVED STOMATAL FUNCTION IN PLANTS



CONGRESSES AND SEMINARS

Date	Title	Place
APRIL 2023	INTERNATIONAL WORKSHOP ON PLANT MEMBRANE BIOLOGY	INSTITUTE OF PLANT BIOLOGY, NATIONAL TAIWAN UNIVERSITY, TAIPEI, TAIWAN

Articles in reviews
GORK K ⁺ CHANNEL STRUCTURE AND GATING VITAL TO INFORMING STOMATAL ENGINEERING, NATURE COMMUNICATIONS, 2024 (AWAITING PUBLICATION)
ENGINEERING STOMATA FOR ENHANCED CARBON CAPTURE AND WATER-USE EFFICIENCY, TRENDS IN PLANT SCIENCE, 2023, https://doi.org/10.1016/j.tplants.2023.06.002
ENGINEERING A K ⁺ CHANNEL 'SENSORY ANTENNA' ENHANCES STOMATAL KINETICS, WATER USE EFFICIENCY AND PHOTOSYNTHESIS, NATURE PLANTS, 2022, doi: 10.1038/s41477-022-01255-2.

Congress proceedings
INTERNATIONAL WORKSHOP ON PLANT MEMBRANE BIOLOGY, TAIPEI, TAIWAN, 2023
BREAKING DOWN THE GATE: MODIFICATION OF VOLTAGE-DEPENDENT GATING PROPERTIES IN GORK CHANNELS OF <i>ARABIDOPSIS THALIANA</i>

OTHER INFORMATION

My PhD thesis was submitted on the 01.10.2024 and my viva was successfully completed on the 07.11.2024. Resubmission of my PhD thesis with minor corrections was completed on the 30.11.2024 and approved by examiners on the 02.11.2024. I am currently awaiting my certification which will be available to support my application imminently
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Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: GLASGOW, UK, 02.11.2024