

Curriculum Vitae

Personal information

First name / Family name	Douglas Pyott		
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Nationality	U.K citizen		
Date of birth			
Gender	Male		

Personal statement

I am a highly motivated young scientist, and am due to complete my PhD in September 2017. I have a passion for molecular plant sciences and have a long-term goal of becoming an independent plant science researcher. This career choice is a manifestation of my scientific interests, and my awareness of the importance of both fundamental and translational plant science research in the context of a growing global population. I aspire, throughout my career, to be able to address many fundamental, academic questions while at the same time have exposure to applied and agricultural aspects of plant science research through collaborative projects. To attain this long-term goal, I aim in the shorter-term to maximise my exposure to different research groups and research topics within the plant science community, as this will give me a broad base of theoretical/practical skills and will diversify my research interests and networks.

I believe that an Agreenskills+ fellowship would be greatly beneficial to me as an early-stage, young scientist pursuing a career in biological research. I am attracted to this post-doctoral fellowship programme for several reasons. Firstly, I anticipate great benefits in undertaking post-doctoral research in a different country to that of my PhD (U.K). This inevitably would expand my research networks and expose me to new ways of thinking and research/funding opportunities across Europe. Moreover, as part of the Agreenium-IAVFF consortium, this fellowship programme would introduce me to the constituent organisations (INRA, CIRAD, AgroParisTech, etc), which would help to broaden my awareness and knowledge of French agricultural research institutes. Secondly, the training opportunities provided by the programme (annual meetings and thematic training seminars) will help me to develop professional skills outside of the laboratory (grant writing, publishing strategies, technology transfer, policy, project management, etc) that are crucial particularly at this early stage of my career. Finally, being part of a cohort of Agreenskills+ fellows would give me the opportunity to meet with scientists from a wide variety of backgrounds, who are also in an early to middle stage of their careers. These contacts, I believe, will be useful for engendering a healthy exchange of ideas across disciplines and may form the basis of future collaboration. Furthermore, I expect that discussions with contemporary fellows who have previous post-doctoral research experience will allow me to gain

	<p>valuable first-hand career advice.</p> <p>To date, my research achievements have manifested in one first author publication, one conference studentship and two successful grant applications (see below). The high standard of my doctoral research and my ability to communicate this fluently has been recognised by various prizes at conferences and meetings I have attended throughout my PhD. Finally, the internship that I undertook during my PhD, to set up a laboratory for molecular diagnostic detection of crop pathogens in Malawi, was an equally rewarding and enriching experience that I consider a key achievement. These achievements attest that I am a suitable candidate for an Agreenskills+ fellowship, and I believe my mobility period would result in many more successes. Hence, I regard the Agreenskill+ fellowship as an important and logical step forward in my career as a biological researcher.</p>
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Education and training

Location and dates	Edinburgh, Scotland. 2013-present
Title of qualification awarded	PhD
Principal subjects/occupational skills covered	<p>During my PhD, supervised by Dr Attila Molnar, I have focused my studies on natural and artificial virus defence mechanisms, combining my interests in RNA silencing and CRISPR-induced genome editing. In my recent publication (Pyott <i>et al.</i>, 2016, Molecular Plant Pathology), I demonstrated for the first time that CRISPR-Cas9 technology can be used to edit susceptibility alleles to create virus-resistant plants. Additionally, I have shown that low light fluences and high temperatures can dramatically activate virus-induced RNA silencing, resulting in heightened natural resistance to viruses under these conditions. Currently, I am exploring and developing new methods of CRISPR-induced editing which may circumvent the need for transgenesis/tissue culturing to create edited plants. I anticipate publishing this work before completion of my PhD.</p> <p>During my PhD I have been extensively trained in a wide range of molecular biology techniques including: vector cloning, genetic transformations, phenotype analyses, marker line observations, gene expression analysis, CRISPR- guide-RNA design and delivery, high-throughput selection of edited alleles, and prediction of on-target and off-target CRISPR activity. In addition to these laboratory skills, I have been able to refine the following skills: scientific writing, by publishing review/research papers and writing/co-writing research grants; public engagement, by writing short articles for scientific newsletters/press releases; communication and networking, by presenting posters and oral presentations at international conferences; critical data interpretation, by regularly presenting/critiquing research papers at group meetings (journal club); and teaching, by supervising/co-supervising undergraduate, MSc, and PhD students in the lab, and by running a training programme for basic lab skills during a 3 month internship at the International Potato Center (CIP), in Malawi.</p>
Name of Institute	University of Edinburgh, Institute of Molecular Plant Sciences (IMPS)

Location and dates	Cambridge, England. 2010-2013
Title of qualification awarded	Natural Science Tripos (MA)
Principal subjects/occupational skills	I graduated top of my class with a first class degree from the Plant Sciences

covered	<p>department in 2013. For my final year lab project, co-supervised by Dr Phil Wigge and Dr Alex Webb, I set up a new high-throughput method (using chlorophyll fluorescence imaging) for visualising rhythmic outputs of the circadian clock. This method was then used to screen temperature insensitive mutants for circadian defects, with the aim of mapping the genetic components of temperature regulation in plant circadian clocks. For this work I received 99% for my project report.</p> <p>For my final year dissertation, supervised by Prof. David Baulcombe, I wrote a review-style article where I explored the various ways in which RNA silencing refutes the so-called central dogma of molecular biology. For this work, I was awarded 100%.</p> <p>The Natural Science Tripos at the University of Cambridge is world-renowned for its high caliber training and breadth of focus. This degree provided me with a broad knowledge base in topics such as mathematical modelling of biological systems, physiology, genetics and genomics, developmental biology, evolutionary biology, and biochemistry. Furthermore, the independent research project and dissertation in my final year gave me opportunity to develop skills related to project planning and delivery, time management, problem solving, and creative thinking</p>
Name of Institute	University of Cambridge

Work experience

Location and dates	Lilongwe, Malawi 14/2/15-14/5/15.
Occupation or position held	Laboratory instructor
Main activities and responsibilities	<p>The main focus of this internship was to provide training of laboratory skills to NARS (National Agricultural Research Systems) staff, who had limited laboratory experience. The objective of this training was to build capacity for detection of crop pathogens using molecular techniques such as ELISA and RT-PCR diagnostics. Specifically, my activities included: testing lab equipment and trouble-shooting associated issues; preparing lab manuals (covering health and safety, biological background of ELISA and PCR diagnostics, and technical notes for the methods); and planning/organising field trips to test a wide variety of pathogens (bacterial, fungal and viral) on various crops (including potato, sweet-potato, cassava, and banana). This internship gave me great opportunities to further develop skills related to teaching, leadership, problem solving, and professional conduct. Furthermore, as this internship took place in Malawi it provided me with international exposure and insight into working alongside non-governmental organisations and national institutes.</p>
Name of employer	International Potato Center, Malawi. Supervised by Dr. Paul Demo, p.demo@cgiar.org

Languages

Mother tongue(s)	English				
Other language(s)	Understanding		Speaking		Writing
<i>European level (*)</i>	Listening	Reading	Spoken interaction	Spoken production	
(*) Common European Framework of Reference for Languages http://europass.cedefop.europa.eu/en/resources/european-language-levels-cefr					

Academic Record

Publications	<p>Accepted, in press and published articles / papers:</p> <p>Pyott D.E, Sheehan E. & Molnar A. (2016), Engineering of CRISPR/Cas9-mediated potyvirus resistance in transgene-free Arabidopsis plants. <i>Molecular Plant Pathology</i>, 17(8): 1276-88.</p> <p>Pyott D.E & Molnar A. (2015) Going mobile: Movement of small RNAs shapes the genetic landscape of plants. <i>Plant Biotechnology Journal</i>, 13(3): 306-18</p> <p>Franklin K. A., Toledo-Ortiz G., Pyott D.E & Halliday K.J. (2014) Interaction of light and temperature signalling. <i>Journal of experimental botany</i>, 65(11): 2859-71</p> <p>Submitted publications:</p>
Presentations as invited speaker	Invited speaker at the British Society of Plant Pathology (BSPP) outreach event (September 2016).
Participation in open calls for proposals as contributor or leader	<p><u>2017:</u></p> <ul style="list-style-type: none"> Participation in BBSRC GCRF grant application (outcome: pending) <p><u>2016:</u></p> <ul style="list-style-type: none"> Participation in BBSRC GCRF-IAA grant application (outcome: successful £6500) Participation in BBSRC grant application (outcome: unsuccessful) <p><u>2014:</u></p> <ul style="list-style-type: none"> Lead applicant in Innovative Initiative Grant (IIG) from the University of Edinburgh (outcome: successful £2500)
Graduate teaching as lecturer or training coordinator	Training coordinator for running an undergraduate practical class (March 2017).
Awards and prizes, if any	<p><u>2016:</u></p> <ul style="list-style-type: none"> Best Speaker Prize, for best oral presentation at Institute of Molecular Plant Sciences Research symposium (University of Edinburgh). P.H. Gregory Prize, for best oral presentation at the British Society of Plant Pathology Presidential Meeting. Conference Studentship to give an oral presentation at the 16th triennial

	<p>meeting of the Virological Section of the European Association of Potato Research(EAPR)/8th annual meeting of PVYwide organisation.</p> <p><u>2014:</u></p> <ul style="list-style-type: none"> • J Colhoun Prize, for best poster presentation at the British Society of Plant Pathology Presidential Meeting. • Best Poster Award at the Edinburgh University small RNA meeting. <p><u>2013:</u></p> <ul style="list-style-type: none"> • Selwyn College Scholar Award, for academic performance. • Tripes Award, for achieving first class exam results. • Melbourne Prize, for achieving exceptional first class exam results. • T.B Wood Prize, for highest ranking exam results, research project and dissertation. <p><u>2012:</u></p> <ul style="list-style-type: none"> • Selwyn College Scholar Award, for academic performance. • Tripes Award, for achieving first class exam results. <p><u>2011:</u></p> <ul style="list-style-type: none"> • Selwyn College Scholar Award, for academic performance. • Tripes Award, for achieving first class exam results. <p><u>2011:</u></p> <p>Highlands and Islands Bursary, for academic achievement.</p>
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Collaboration and Networking

Participation in collaborative projects funded by competitive programmes	
Partnerships or experience with industry	A competitive research grant from the Biotechnology and Biological Sciences Research Council (BBSRC), was awarded jointly to myself and my supervisor, Dr Attila Molnar to collaborate with Dr Ha at the Vietnam Academy of Science and Technology (VAST). This project is funded by the BBSRC Global Challenges Research Fund – Impact Acceleration Account (GCRF-IAA) and was awarded to study protein-protein interactions between Papaya Ringspot virus (PRSV) and its host, papaya, with a view to using CRISPR/Cas9 technology to engineer resistance to PSRV in cultivated papaya.
Graduate teaching as lecturer or training coordinator; PhD supervision	I have experience with undergraduate teaching, participating in tutorial and practical classes, and took a leading role organising/running an undergraduate practical class. Throughout my PhD I have had an active role in supervising/mentoring undergraduate, MSc and PhD students in the laboratory.

Research management, Technology transfer, and Communication

Team management	I have had opportunities to develop my team management skills during my internship at CIP, Malawi (see internships section above), and for the undergraduate practical class, in which I managed a team of PhD students and technical staff.
Technological platform management	My internship at CIP involved technology transfer and management of personnel.



Scientific References

Full name	Dr Attila Molnar
Position	PhD Supervisor (Principal Investigator)
Institution	IMPS, University of Edinburgh
Email address	Attila.Molnar@ed.ac.uk
Full name	Prof. Andrew Hudson
Position	Thesis committee member (Principal Investigator)
Institution	IMPS, University of Edinburgh
Email address	Andrew.Hudson@ed.ac.uk

How did you hear about AgreenSkills programmes?

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