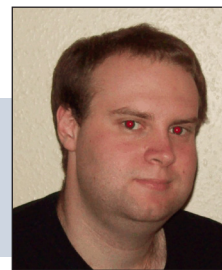


# JAMES LLOYD



“ I first became interested in plant science when I attended the Gatsby summer school in 2006 and I am now exploring the mechanisms and evolution of gene expression pathways within the plant kingdom. ”

## First Degree

BSc Genetics (with a year in industry)  
University of York  
Graduated July 2009

### Sainsbury Undergraduate Studentship (2007-2009)

Mentor - Professor Ottoline Leyser  
Conference attended - 19<sup>th</sup> IPGSA meeting in Puerto Vallarta, Mexico

### One-year Industrial placement (2007-2008)

Project title – Over-expression of proteases in senescing leaves  
Advanced Technologies (Cambridge) Ltd

## PhD

### Sainsbury PhD Studentship

Characterisation of the nonsense-mediated mRNA  
decay pathway in moss  
University of Leeds  
Supervisor - Professor Brendan Davies  
Started October 2009

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## Summary of Research Project

Premature termination codons (PTCs) can arise from mutations or errors in mRNA production and can produce toxic truncated proteins. Nonsense-mediated mRNA decay (NMD) is a pathway conserved in eukaryotes that recognises PTCs during the termination of translation and causes the transcripts to be degraded. NMD also regulates expression of functional genes in animals, fungi and plants. Arabidopsis plants with NMD effectors knocked-down have altered development and a different response to environmental changes. Knocking out NMD effectors in *Arabidopsis* is embryonic lethal.

Moss (*Physcomitrella*) is a model plant, separated from flowering plants by over 450 million years of evolution and the only plant where specific gene knockouts can be made. By knocking out or down NMD effectors in moss we can examine the role of NMD in moss growth. By examining how *Physcomitrella* identifies PTCs and what transcripts are targeted by NMD we can gain a better understanding of the evolution and functions of NMD in plants.

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