



## **EPA – Maynooth University PhD Opportunity "Survival of mobile antibiotic resistance in water"**

Applications are invited for a joint EPA – Maynooth University Co-Fund PhD which will be performed in the Human Health Institute at Maynooth University.

Our EU Water JPI project (Stare) identified specific mobile antibiotic resistance (AR) genes and bacteria in the effluent of wastewater treatment plants (WWTPs) in Ireland and the EU. These AR genes pose a threat to the treatment of human and animal infections if they transfer to pathogenic bacteria as they confer resistance to a wide range of antibiotics. The objective of this PhD project is to identify the capabilities of these AR mechanisms carried on mobile DNA (plasmids) to survive in downstream water when they are released from WWTPs. This will be achieved by characterising the genetic components of the collected AR plasmids, analysing the collected plasmids for their ability to survive in receiving water and under antibiotic pressure similar to that identified in the WWTP effluents and identifying the plasmids capable of surviving and transferring to both resident water bacteria and pathogenic bacteria. The potential applications of the research findings are to describe the plasmids and AR genes emerging from WWTPs, which pose the greatest risk to human and animal health and further dissemination in the environment. This data is vital, as AR is becoming more important in water regulation as an emerging contaminant and further in the future we will need to identify what needs to be measured as a risk and to enable risk assessment models to be developed.

Academic supervisor: Dr Fiona Walsh, Department of Biology, Maynooth University.  
<https://www.maynoothuniversity.ie/biology/our-people/fiona-walsh#3>

### **Qualification required:**

Good honours degree in Microbiology, molecular biology or related discipline is required. The normal academic qualification expected for a PhD studentship is an Upper Second Class (Hons) Degree (2H1 or equivalent). All applications should be accompanied with copies of degree transcripts (translated into English) in order for the Graduate Studies Office to make a decision on academic eligibility.

**Award:** The PhD studentship is a four-year structured PhD (<https://www.maynoothuniversity.ie/study-maynooth/postgraduate-studies/courses/phd-biology>) and is a joint research project between the EPA and Maynooth University. A stipend of €16,000 per annum for 4 years will be provided and university fees are paid in addition to the stipend. *International students are eligible for the funding but will need to find their own support to cover the extra tuition fees chargeable to non EU students.*

Please send applications to  
[fiona.walsh@mu.ie](mailto:fiona.walsh@mu.ie)

Closing date for applications is **August 8<sup>th</sup> 2018**.

Candidates will be called for interview between the 29<sup>th</sup> and 31<sup>st</sup> of August.