Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition, which presents itself in early postnatal life and goes on to cause substantial morbidity in adulthood. Recently, it has been suggested that the development of ASD may occur prior to birth, during the fetal period, but even so, clinical diagnosis is not possible until at least 3-4 years of age. Emerging evidence has shown that early, intensive interventions are the most effective in decreasing core symptoms and improving outcomes. As such, early identification of the disorder has become a priority.

As part of my PhD, I am hoping to address this significant gap in knowledge by examining brain development in infants at risk of ASD. I am using non-invasive brain imaging to generate comprehensive information on both brain structure and chemistry, at both fetal, neonatal and infancy time-points, in infants with or without an increased risk for ASD. In doing so, I aim to identify any differences in brain development at this critical time. I also hope to identify biomarkers that may be predictive of ASD, as well as markers that may be protective in preventing children at risk of such conditions from developing clinically significant traits.

Besides introducing the topic of my PhD, and sharing some preliminary results with you, I will also be talking about the wider EU-AIMS (European Autism Interventions – A multicentre Study for Developing New Medications) project. This innovative preclinical and clinical programme brings together scientists from across Europe, to help identify treatment biomarkers for ASD and related neurodevelopmental conditions.