Current primary areas of investigation.

1. The analysis of biological samples from people diagnosed with Pervasive Developmental Disorder (PDD) and/or related conditions[1] to ascertain the presence of any single or collective biomarkers to distinguish PDD from non-diagnosed and other control populations. This will examine various sub-groups and phenotypes based on symptom presentation, age, gender and co-morbidity parameters. The aim is to identify one or more biomarkers to aid early detection of PDD and investigate changes based on maturation.

2. The analysis of biological samples from people with PDD and related conditions to determine potential best responders / non-responders to various biomedical interventions. Interventions will include: use of a gluten- and/or casein-free diets, use of supplementary essential fatty acids (EFAs), use of dairy products derived from other forms of the casein protein (A2). The aim is to identify one or more biomarkers to predict which people / sub-groups these interventions should be targeted at. This work may be extended to include analysis based on pharmacotherapy use.

[1] Other related groups will include but not be limited to childhood developmental conditions co-morbid to PDD (e.g. Attention-Deficit Hyperactivity-Disorder, ADHD; speech and language disorders; developmental co-ordination disorders, DCD; other learning difficulties not otherwise specified), overlapping fatigue-related conditions (Chronic Fatigue Syndrome, CFS; Myalgic Encephalomyelitis, ME; fibromyalgia; multiple chemical sensitivity, MCS) and other conditions (cystic fibrosis, CF; epilepsy and seizure disorders).

3. The analysis of biological samples from people with PDD and related conditions to ascertain any potential role of environmental exposures contributory to the development of the condition. This will focus on the role of organophosphate (OP) and other pesticides / herbicides. Other potential chemical or pharmaceutical products linked to symptoms may be included for investigation. The aim is to identify whether compounds are present in samples in greater / less concentration that control and other populations.

4. The development and testing of analytical methods to enhance accuracy, reliability and reproducibility of biological samples from people with PDD and related conditions. This will include but not be limited to methods for the analysis of tryptophan / indole derivatives and protein, peptides and amino-acids. Further methods for the analysis of inborn errors of metabolism will be developed.

5. The application of health informatics and data mining strategies to identify historical and contemporaneous somatic and behavioural correlates associated with PDD and related conditions. The aim is to identify any potential group or sub-group correlates in order to further inform biological analyses.

We will be seeking national and international collaboration with other institutions and partners in order to forward an agenda based on the previously

detailed areas of investigation. This will include participation in other projects aimed at improving quality of life for people with PDD and/or related conditions. Findings will be made public via a combination of peer-reviewed scientific articles and in-house publications. All our research is for public benefit.