

# Section of Metabolic Medicine

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# People



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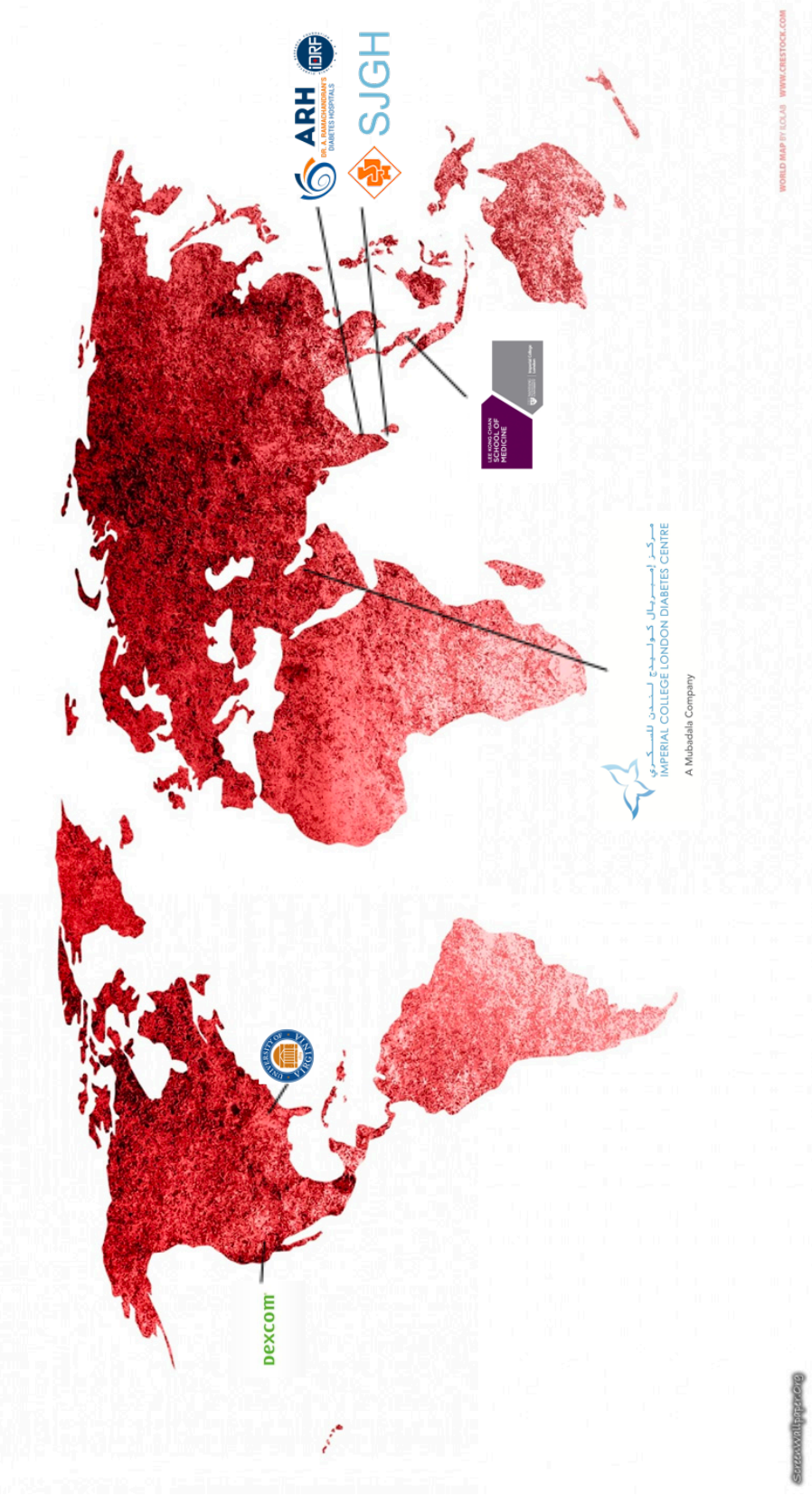
Shivani Misra



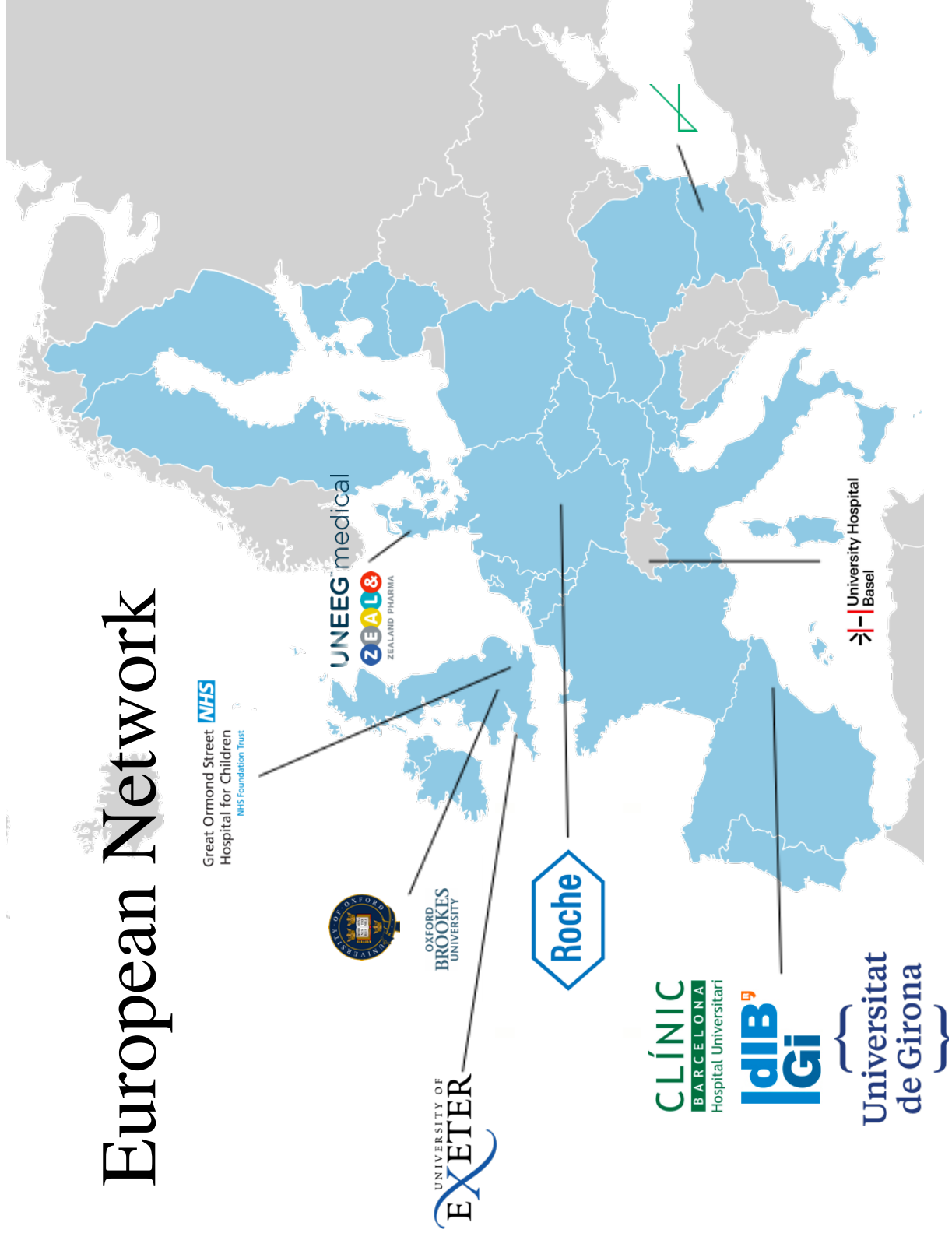
Monika  
Reddy

# Imperial Network

# International Network



# European Network



# Major Research Programmes - Cohorts

- **ADDRESS2 (Johnston/ Oliver)**

- Largest cohort of adults with new onset T1DM in the world
- 160 sites across England, Scotland and Wales
- 6,547 participants and recruiting around 70/month
- More than half participants donate a blood sample for autoantibody, DNA and other analyses
- Consent to contact, linkage to NHS diabetes audit data

- **MY DIABETES (Misra)**

- Young-onset diabetes from white European, South Asian and African-Caribbean ethnicities
- Genetic and biomarker studies to improve sub-type differentiation



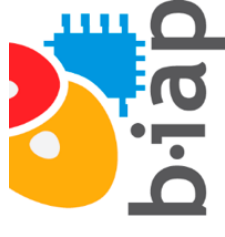
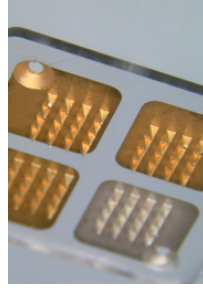
Supporting **TYPE 1**  
Diabetes Research

# Major Research Programmes - Cohorts

- NHS Diabetes Prevention Programme (Valabhji)
  - National programme of type 2 diabetes prevention
  - By March 2018 78,000 individuals attended an initial assessment
  - Linkage to National Diabetes Audit data for longitudinal data
- WynnMet (Godsland)
  - Complete Wynn metabolic dataset dating back to 1965
  - 29,245 records of metabolic information for 13,848 individuals
  - Linkage to ONS mortality data

# Major Research Programmes – New Technologies

- Microneedles (Oliver/ Reddy)
  - Accurate, discrete metabolic monitoring
  - Glucose, lactate, ketones
  - WO 2016/009228 A1 (Multi-probe microstructured arrays)
- Automated Insulin Delivery (Oliver/ Reddy)
  - Closed loop insulin delivery for type 1 and type 2 diabetes
  - WO 2018/042147 A1 (Automatic Closed Loop Glucose Control)
- Adaptive decision support using AI (Reddy/ Oliver)
  - ABC4D Imperial partnership with industry
  - PEPPER EU H2020 consortium
  - ARISES EPSRC collaboration





# Major Research Programmes – Existing Technologies

- AIR-CGM (Oliver/ Reddy/ LAS)
  - Intervention immediately after severe hypoglycaemia
- ALPHA (Oliver/ Reddy/ Tan)
  - Accuracy of glucose monitoring technologies in haemodialysis
- FIRST1D (Rilstone)
  - Insulin pump therapy optimization
- PACE (Hill)
  - Continuous glucose monitoring in exercise complicated by exercise
- YODA (Misra)
  - Continuous glucose monitoring in young people with type 1 diabetes

# Recent Achievements

- 15 publications to date in 2019
- Including Diabetes Care (IF 15.27)
- Section investigator on over £3.4m funding over last 3 years
- Including £1.3m from commercial partners
- Data cited in Diabetes UK, ADA, and EU HTA guidelines, influencing international practice



Continuous Glucose Monitoring in People With Type 1 Diabetes on Multiple-Dose Injection Therapy: The Relationship Between Glycemic Control and Hypoglycemia

<https://doi.org/10.2337/dci9-0977>

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Peter Calhoun,<sup>2</sup> Nathan Cohen,<sup>3</sup>  
Vanessa Moscardo,<sup>4</sup> Norbert Hermanns,<sup>5,6</sup>  
Guido Freckmann,<sup>7</sup> Monika Reddy,<sup>4</sup> and  
Lutz Heinemann<sup>8</sup>

# Highlights of Future Plans

- **EYELETS (Reddy/ Oliver/ Rutter/ Cordeiro)**
  - Intra-ocular pancreatic islet transplantation
- **Intensive glucose after hyperacute stroke (Hill)**
  - Integrated glucose monitoring to improve outcomes
- **I HART CGM Paeds (Reddy/ Oliver)**
  - First head to head randomised study of monitoring technologies in children
- **AIDHypo (Oliver/ Reddy)**
  - Automated insulin delivery in people at high risk of hypoglycaemia (in collaboration with Dexcom/ Type Zero/ UVa)
- **Microdose Glucagon (Oliver)**
  - Use of microdose glucagon to treat iatrogenic hypoglycaemia without additional carbohydrates (with Zealand)