***C**onsortium **A**gainst **P**ain In**E**quality (CAPE)* - Advanced Pain Discovery Platform

In response to https://mrc.ukri.org/funding/browse/pre-call-announcement-multidisciplinary-consortia/pre-call-multidisciplinary-consortia-1/

The impact of adverse childhood experiences on pain and responses to treatment

CAPE aims to use a number of approaches to develop resources that support projects which will shed more light on how adverse childhood experiences (ACE) impact the experience of chronic pain and co-morbidities (including depression) and responses to treatment. This will include several work streams bringing together a wide range of expertise, from exploring and linking human samples and data, to developing robust validated assessment tools, and enabling efficient translation of knowledge gained from studying human data and preclinical models. Novel and importantly, the availability of human data will also provide the opportunity inform and refine preclinical models, test novel treatments and establish new approaches to study the complexity between ACEs and chronic pain experiences. Resources will be available to other Advanced Pain Discovery Platform consortia enabling broader consideration of the impact of ACE. Patient and public involvement (PPI) will be an essential component of the programme, from the initial design phase and throughout the lifespan of the programme.

Proposed work streams

1. Develop and validate instruments for assessing childhood experiences with a focus on developing targeted questionnaires and psychophysical testing

2. Epidemiology – Use/validate existing cohorts for data linkage: e.g. Generation Scotland; Walker Cohort, Lothian Birth Cohort, eDRIS (Health and Social Care Integration), 1946 and 1958 birth cohorts, millennium cohort, Avon Longitudinal Study of Parents and Children (ALSPAC, Bristol)

3. Human sample collection: Brain and spinal cord from Edinburgh Brain and Tissue Bank; stem cells from Edinburgh Centre for Regenerative Medicine; neuroimaging, blood and CSF: GoSHARE

The Phase 1 proposal will draw on data (primarily preclinical models) demonstrating the impact of early life adversity (ALE) on chronic pain, depression and responses to opioid analgesics, and how this can be extended or translate into human populations and samples. In subsequent phases, the UK biobank will be used to replicate the initial findings in Scotland, where the consequences of pain inequalities are prevalent. Human blood, cells, neuroimaging and post-mortem brains/spinal cord will enable the use of a variety of approaches (genomic, proteomic, electrophysiological, and imaging) to confirm or refute findings from preclinical studies and generate new hypotheses.

Participants:

University of Aberdeen: G Macfarlane (epidemiology, pain)

University of Dundee: L Colvin (addiction, pain, PPI), T Hales (preclinical models of ELA), J Lambert (preclinical models of ELA), C Henstridge (human brain, tomographic imaging) and D Steele (psychiatry, depression, human imaging, PPI)

University of Edinburgh: S Chandran (neurology, human cells) and C Smith (human brain collection)

University of Stirling: L. Caes (psychology, pain, ACE, PPI)

University College, London: Suellen Walker (paediatric anaesthesia, ACE, ELA, pain, PPI)