

Finding out the genetic cause of Juvenile Myoclonic Epilepsy

Submission date 20/11/2017	Recruitment status Recruiting	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
Registration date 18/12/2017	Overall study status Ongoing	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
Last Edited 08/05/2025	Condition category Nervous System Diseases	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

Epilepsy is a common neurological disorder affecting 1% of the population. There are over 30 types of epilepsy, some common, some rare. Most epilepsies arise in childhood and have a genetic cause. Approximately 40% of patients have the common forms of Genetic Generalised Epilepsy (GGE), and the commonest GGE is “Juvenile Myoclonic Epilepsy” or JME. There is overwhelming evidence that JME is caused by changes in genetic code. These changes are likely to be found in more than just one gene and there may be more than one type of change. In order to find these changes we need to study a large number of people with JME and compare their genetic code with people who do not have epilepsy. Finding the causes of JME will lead to a better understanding of its cause, new treatments, and tailoring of treatments according to a person's genetic make-up. The aim of this study is to find the genetic cause for JME by comparing the genetic code in JME patients with that in people who do not have epilepsy, using clues from their electroencephalograph or brainwave test that is used to help diagnose epilepsy.

Who can participate?

Patients aged 6 to 50 years old who have a diagnosis of Juvenile Myoclonic Epilepsy.

What does the study involve?

Participants provide a single blood sample, along with permission to collect clinical data about their diagnosis and a copy of their clinical EEG.

What are the possible benefits and risks of participating?

There is no direct benefit or risk to the research participants but the results from this study may help other people with epilepsy or brain impairments in the future. Participants may experience discomfort when providing the blood samples.

Where is the study run from?

King's College London (UK)

When is the study starting and how long is it expected to run for?

July 2015 to September 2026

Who is funding the study?
Canadian Institutes of Health Research (Canada)

Who is the main contact?
1. Professor Deb Pal
2. Sylvine Lalnunhlimi

Contact information

Type(s)
Scientific

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Additional identifiers

ClinicalTrials.gov (NCT)
NCT03400371

Integrated Research Application System (IRAS)
199351

Protocol serial number

CIHR ID: MOP-142405, IRAS Project ID: 199351

Study information

Scientific Title

Biology of Juvenile Myoclonic Epilepsy

Acronym

BIOJUME

Study objectives

1. JME is associated with variation in GABAA receptor genes
2. JME is associated with molecular networks of ion-channels
3. Endophenotypes of JME will increase power to localise disease-associated genes

Ethics approval required

Old ethics approval format

Ethics approval(s)

Approved 08/12/2016, South Central - Oxford C NHS Research Ethics Committee (Level 3, Block B Lewins Mead, Bristol, BS1 2NT, United Kingdom; +44 (0)20 7104 8049; nrescommittee.southcentral-oxfordc@nhs.net), ref: 16/SC/0266

Study design

Observational cross-sectional study

Primary study design

Observational

Study type(s)

Screening

Health condition(s) or problem(s) studied

People with a diagnosis of Juvenile Myoclonic Epilepsy

Interventions

Participation includes one visit for one blood draw per recruited patient. 10-20ml peripheral venous blood is taken from the antecubital fossa. The DNA from the blood sample is then extracted and resequenced for analysis.

Intervention Type

Biological/Vaccine

Phase

Not Applicable

Drug/device/biological/vaccine name(s)

Not provided at time of registration

Primary outcome(s)

Association between SNP marker and phenotype is measured using genomewide DNA markers at a single timepoint

Key secondary outcome(s)

Brain network ictogenicity is measured using quantitative EEG data at a single timepoint

Completion date

30/09/2026

Eligibility**Key inclusion criteria**

Current inclusion criteria as of 08/05/2025:

1. Diagnosis of Juvenile Myoclonic Epilepsy in accordance with Consensus criteria
2. Age of myoclonus onset 6-25 years
3. Seizures comprising predominant or exclusive early morning myoclonus of upper extremities
4. EEG interictal generalized spikes and/or polyspike and waves with normal background
5. Current age 6-50 years

Previous inclusion criteria:

1. Diagnosis of Juvenile Myoclonic Epilepsy in accordance with Consensus criteria
2. Age of myoclonus onset 10-25 years
3. Seizures comprising predominant or exclusive early morning myoclonus of upper extremities
4. EEG interictal generalized spikes and/or polyspike and waves with normal background
5. Current age 10-40 years

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Mixed

Lower age limit

6 years

Upper age limit

50 years

Sex

All

Key exclusion criteria

1. Myoclonus only associated with carbamazepine or lamotrigine therapy
2. EEG showing predominant focal interictal epileptiform discharges or abnormal background
3. Any evidence of progressive or symptomatic myoclonus epilepsy or focal seizures
4. Global learning disability

- 5. Dysmorphic syndrome
- 6. Unable to provide informed consent

Date of first enrolment

13/07/2017

Date of final enrolment

30/06/2026

Locations

Countries of recruitment

United Kingdom

England

Wales

Canada

Czech Republic

Denmark

Estonia

Germany

Italy

Malaysia

Sweden

United States of America

Study participating centre

King's College Hospital

London

United Kingdom

SE5 9RS

Study participating centre

College of Medicine

Swansea

United Kingdom

SA2 8PP

Study participating centre

Cardiff University

Cardiff

United Kingdom

CF10 3AT

Study participating centre

Charles University

Prague

Czech Republic

116 36

Study participating centre

Danish National Epilepsy Centre

Dianalund

Denmark

4293

Study participating centre

Tallinn Children's Hospital

Tallinn

Estonia

13419

Study participating centre

Vestre Viken Health Trust, Oslo

Drammen

Norway

3004

Study participating centre

Italian League Against Epilepsy

Rome

Italy

00198

Study participating centre

Hospital for Sick Kids

Toronto
Canada
M5G 1X8

Study participating centre

Nationwide Children's Hospital

Columbus, Ohio
United States of America
43215

Study participating centre

Odense University Hospital

Odense
Denmark
5000

Study participating centre

University of Malaysia

Kuala Lumpur
Malaysia
50603

Study participating centre

Karolinska University Hospital

Stockholm
Sweden
171 64

Study participating centre

Marburg University Hospital

Marburg
Germany
35043

Study participating centre

Sapienza University of Rome

Rome
Italy
00185

Study participating centre

The Newcastle upon Tyne Hospitals NHS Foundation Trust

Freeman Hospital
Freeman Road
High Heaton
Newcastle upon Tyne
United Kingdom
NE7 7DN

Study participating centre

Hasbro Children's Hospital, Brown University

Rhode Island
United States of America
02903

Study participating centre

Airedale NHS Foundation Trust

Airedale General Hospital
Skipton Road
Steeton
Keighley
United Kingdom
BD20 6TD

Study participating centre

Bradford Teaching Hospitals NHS Foundation Trust

Bradford Royal Infirmary
Duckworth Lane
Bradford
United Kingdom
BD9 6RJ

Study participating centre

University of Wales and Llandough Hospital NHS Trust

Heath Park
Cardiff

United Kingdom
CF14 4XW

Study participating centre

Darent Valley Hospital

Darenth Wood Road
Dartford
United Kingdom
DA2 8DA

Study participating centre

Guys and St Thomas' NHS Foundation Trust

London
United Kingdom
SE1 7EH

Study participating centre

Leeds Teaching Hospitals NHS Trust

St. James's University Hospital
Beckett Street
Leeds
United Kingdom
LS9 7TF

Study participating centre

Queen Elizabeth University Hospital

1345 Govan Road
Glasgow
United Kingdom
G51 4TF

Sponsor information

Organisation

King's College London

Organisation

Funder(s)

Funder type

Government

Funder Name

Canadian Institutes of Health Research

Alternative Name(s)

Instituts de Recherche en Santé du Canada, The Canadian Institutes of Health Research (CIHR), Canadian Institutes of Health Research (CIHR), Canadian Institutes of Health Research | Ottawa ON, CIHR - Welcome to the Canadian Institutes of Health Research, CIHR, IRSC

Funding Body Type

Government organisation

Funding Body Subtype

National government

Location

Canada

Results and Publications

Individual participant data (IPD) sharing plan

Initially, study data will be used for project as detailed and then made available to a limited number of collaborators for other research projects. After this, the data is then expected to be put into a publically available repository or available upon request.

IPD sharing plan summary

Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			28/06/2023	No	No
Study website	Study website	11/11/2025	11/11/2025	No	Yes