

# A study of cell signalling biomarkers in patients with tuberous sclerosis

<b>Submission date</b> 31/08/2022	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 09/09/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 02/01/2024	<b>Condition category</b> Genetic Diseases	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims?

Tuberous sclerosis is a rare genetic condition that causes mainly non-cancerous tumours to develop in different parts of the body. It is thought that a biochemical pathway known as the mTOR (mechanistic Target of Rapamycin) pathway is overactive in tuberous sclerosis. Specific chemicals found naturally in the blood are linked to this pathway. These naturally occurring chemicals are called biomarkers. These chemicals could show how well the body responds to new treatments and in turn speed up the discovery of new medicines. This study will check that the method by which the biomarkers are being measured is working and appropriate for patients with tuberous sclerosis.

### Who can participate?

Patients aged from 10 to 65 years known to have tuberous sclerosis

### What does the study involve?

This study requires the patient to provide a blood sample to measure mTOR biomarkers in their blood. No additional medication will be received, and all other treatments for tuberous sclerosis will remain as they are. Wherever possible the study will be conducted as part of usual clinic visits. The first visit is a screening visit so that the doctor can check the patient is suitable to take part, provide the study information and if appropriate, take consent. This will take about 60 minutes. The second visit (up to 6 weeks later) will be to check there are no changes in health status/medications and to take the blood sample. This will take about 30 minutes. To provide this sample, the patient must not eat for 8 hours beforehand (overnight) and avoid drinks containing sugar and alcohol. Then a qualified healthcare professional (nurse, doctor or phlebotomist) will take 10 ml (about 2 teaspoons) of blood. It is intended that extra blood will be taken as part of routine blood tests. Blood will then be transferred, on the same day, to a central laboratory that will analyse your blood sample for the mTOR biomarkers.

### What are the possible benefits/risks of participating?

Research like this helps to continually improve the treatments and care provided to all patients. Although no extra benefit is received from taking part in this study the results will be used to support the use of biomarkers in future clinical studies which means it could help in the development of new drugs. The patient's routine treatment remains unchanged. The risk

involved in taking blood is the same as for any clinic visit where blood is taken. At the site where blood is taken there may have pain or bruising and, although extremely rare, an infection could develop. The patient may feel dizzy or could faint during or after blood has been taken.

Where is the study run from?

1. Bristol Childrens Hospital (UK)
2. The Royal Sussex County Hospital (UK)
3. St George's Hospital Medical School (UK)

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

January 2022 to February 2023

Who is funding the study?

Aeovian Pharmaceuticals Inc. (USA)

Who is the main contact?

1. Dr Sam Amin, sam.amin@uhbw.nhs.uk
2. Kaye Hallett, khallett@aeovian.com
3. Pierre Rehbaum, pierre.rehbaum@iqvia.com

## Contact information

### Type(s)

Public

### Contact name

Mrs Kaye Hallett

### Contact details

7, Oriel Hill  
Camberley  
United Kingdom  
GU15 2JW  
+44 (0)7786117003  
khallett@aeovian.com

### Type(s)

Principal Investigator

### Contact name

Dr Sam Amin

### Contact details

University Hospitals Bristol and Weston  
Marlborough St  
Bristol  
United Kingdom  
BS1 3NU  
+44 (0)7886660762  
sam.amin@uhbw.nhs.uk

**Type(s)**

Scientific

**Contact name**

Mr David Ryman

**Contact details**

Aeovian Pharmaceuticals Inc  
2930 Domingo Dr  
Suite 145  
Berkeley  
United States of America  
CA 94705  
+1 (0)510 439 1050  
dryman@aeovian.com

## Additional identifiers

**EudraCT/CTIS number**

Nil known

**IRAS number**

316411

**ClinicalTrials.gov number**

Nil known

**Secondary identifying numbers**

mTOR Bio-001, IRAS 316411, CPMS 52900

## Study information

**Scientific Title**

A study to validate the assay of biomarkers of the mTOR signalling pathway (p-S6RP(Ser240 /244) for mTORC1 and p-AKT (Ser473) for mTORC2) and other non-genetic biomarkers in whole blood samples from patients with tuberous sclerosis complex (TSC): Biomarkers in Patients with Tuberous Sclerosis (BioPaTS)

**Acronym**

BioPaTS

**Study objectives**

It is thought that a biochemical pathway known as the mTOR (mechanistic Target of Rapamycin) pathway is overactive in tuberous sclerosis. Specific chemicals found naturally in the blood are linked to this pathway. These naturally occurring chemicals are called biomarkers. These chemicals could show how well the body responds to new treatments and in turn speed up the discovery of new medicines.

This study will check that the method by which the biomarkers are being measured is working and appropriate for patients with tuberous sclerosis.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Approved 22/7/2022, South Central – Hampshire A Research Ethics Committee (Temple Quay House, 2 The Square, Bristol Research Ethics Committee Centre, BS1 6PN, UK; +44 (0)207 104 8196; hampshirea.rec@hra.nhs.uk), ref: 22/SC/0188

**Study design**

Non-interventional study

**Primary study design**

Observational

**Secondary study design**

Biomarker study

**Study setting(s)**

Hospital

**Study type(s)**

Other

**Participant information sheet**

Not available in web format

**Health condition(s) or problem(s) studied**

Tuberous sclerosis complex (TSC)

**Interventions**

This study requires the patient to provide a blood sample to measure mTOR biomarkers in their blood. No additional medication will be received, and all other treatments for tuberous sclerosis will remain as they are. Wherever possible the study will be conducted as part of usual clinic visits. The first visit is a screening visit so that the doctor can check the patient is suitable to take part, provide the study information and if appropriate, take consent. This will take about 60 minutes. The second visit (up to 6 weeks later) will be to check there are no changes in health status/medications and to take the blood sample. This will take about 30 minutes. To provide this sample, the patient must not eat for 8 hours beforehand (overnight) and avoid drinks containing sugar and alcohol. Then a qualified healthcare professional (nurse, doctor or phlebotomist) will take 10 ml (about 2 teaspoons) of blood. It is intended that extra blood will be taken as part of routine blood tests. Blood will then be transferred, on the same day, to a central laboratory that will analyse the blood sample for the mTOR biomarkers.

**Intervention Type**

Other

**Primary outcome measure**

Inter- and intra- assay precision measured as % inhibition of the mTOR signal, as measured by electrochemiluminescence (ECL) units at a single timepoint

## Secondary outcome measures

The stability of signal in samples after freeze/thawing cycles and long-term storage (up to 1 month), pre- and post-processing of blood will be assessed by measuring ECL signal strength and % inhibition at a single timepoint

## Overall study start date

25/01/2022

## Completion date

28/02/2023

# Eligibility

## Key inclusion criteria

1. Patients who are able to provide written informed consent appropriate to age/local law - patient and/or parent(s)/legal representative who are willing and able to give informed consent /assent for participation in the study
2. Patients who have a definite diagnosis of tuberous sclerosis complex (TSC) according to the Updated International Tuberous Sclerosis Complex Diagnostic Criteria (Paediatric Neurology 123 (2021)
3. Patients who are male or female aged 10 to 65 years
4. All medications or interventions for epilepsy (including ketogenic diet and any neurostimulation devices for epilepsy) must have been stable for 4 weeks prior to the screening visit

## Participant type(s)

Patient

## Age group

Mixed

## Sex

Both

## Target number of participants

12 evaluable blood samples

## Total final enrolment

14

## Key exclusion criteria

1. Patients with a history of pseudo-seizures
2. Patients with clinically significant unstable medical conditions other than epilepsy
3. Patients who have a serious intercurrent illness or uncontrolled disease that could compromise the interpretation of the data from this study
4. Patients who have received treatment with felbamate, unless continuous for >1 year
5. Patients who have received any other investigational product within the 30 days prior to the screening visit
6. Patients who are unlikely to comply with the requirements of this study

**Date of first enrolment**

05/09/2022

**Date of final enrolment**

13/02/2023

## **Locations**

**Countries of recruitment**

England

United Kingdom

**Study participating centre**

**Bristol Childrens Hospital**

Upper Maudlin Street

Bristol

United Kingdom

BS2 8BJ

**Study participating centre**

**Royal Sussex County Hospital**

Brighton

United Kingdom

BN2 5BE

**Study participating centre**

**St George's Hospital Medical School**

London

United Kingdom

SW17 0RE

## **Sponsor information**

**Organisation**

Aeovian Pharmaceuticals Inc.

**Sponsor details**

2930 Domingo Ave., Suite #145

Berkeley

United States of America

94705  
+1 (0)510 439 1050  
ahulme@aeovian.com

**Sponsor type**  
Industry

**Website**  
<https://www.aeovian.com/>

## Funder(s)

**Funder type**  
Industry

**Funder Name**  
Aeovian Pharmaceuticals Inc.

## Results and Publications

**Publication and dissemination plan**  
Planned publication in a peer-reviewed journal

**Intention to publish date**  
30/12/2023

**Individual participant data (IPD) sharing plan**  
All data generated or analysed during this study will be included in the subsequent results publication

**IPD sharing plan summary**  
Published as a supplement to the results publication

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">HRA research summary</a>			28/06/2023	No	No