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# Sitagliptin for implantation

| Submission date | Recruitment status | [ ] Prospectively registered |
|---|---|---|
| 19/12/2016 | No longer recruiting | [ ] Protocol |
| **Registration date** | **Overall study status** | [ ] Statistical analysis plan |
| 19/12/2016 | Completed | [X] Results |
| **Last Edited** | **Condition category** | [ ] Individual participant data |
| 17/06/2020 | Pregnancy and Childbirth | |

## Plain English summary of protocol

Background and study aims
Miscarriage is defined as the loss of pregnancy before 24 weeks of pregnancy and is the most common complication of pregnancy. 15-25% of pregnancies end in miscarriage, and between 25 and 50% of women will experience at least one miscarriage. Around 1% of all women experience recurrent miscarriage, where they experience several miscarriages in a row. Currently, the only effective treatment to prevent miscarriage is heparin and aspirin for those women with antiphospholipid syndrome (APLS). APLS is a disorder of the immune system that causes an increased risk of blood clots, and occurs in around 15% of women who experience recurrent miscarriage. However, there is no effective treatment for the 85% of recurrent miscarriage patients who do not also suffer from APLS. This study is based on new evidence that has shown that there is a strong association between recurrent miscarriage and a deficiency in stem cells at the endometrium (lining of the womb). The aim of this study is to find out if taking a medication called Sitagliptin, which has been shown in animal studies to increase the number of stem cells in other areas of the body in response to injury, can help increase the number of stem cells in the endometrium.

Who can participate?
Women who have experienced recurrent miscarriage

What does the study involve?
Participants are randomly allocated to one of two groups. Those in the first group receive 100mg Sitagliptin and those in the second group receive a placebo (dummy pill). At the start of the study and then after three months, the stem cell count in the endometrium is measured and the lining of the womb is assessed to see if it has become more favourable for successful implantation.

What are the possible benefits and risks of participating?
Not provided at time of registration

Where is the study run from?
East Surrey Hospital (UK)

When is the study starting and how long is it expected to run for?
June 2016 to August 2017

Who is funding the study?
National Institute of Academic Anaesthesia (UK)

Who is the main contact?
Professor Siobhan Quenby
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# Contact information

### Type(s)
Scientific

### Contact name
Prof Siobhan Quenby

### Contact details
University Hospitals Coventry and Warwickshire NHS Trust
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# Additional identifiers

### Clinical Trials Information System (CTIS)
2016-001120-54

### Protocol serial number
31796

# Study information

### Scientific Title
Does the DPP4 Inhibitor (Sitagliptin) Increase Endometrial Mesenchymal Stem Cells in Women with Recurrent Miscarriage?

### Acronym
SIMPLANT

### Study objectives
The aim of this study is to assess whether Sitagliptin increases endometrial mesenchymal stem cells in women with repeated miscarriage compared to placebo.

### Ethics approval required
Old ethics approval format

### Ethics approval(s)
South Central - Hampshire B Research Ethics Committee, 14/06/2016, ref: 16/SC/0229

### Study design
Randomised; Interventional; Design type: Prevention, Drug, Cellular

### Primary study design
Interventional

### Study type(s)
Treatment

### Health condition(s) or problem(s) studied
Specialty: Reproductive health and childbirth, Primary sub-specialty: Maternal/ Fetal medicine; UKCRC code/ Disease: Reproductive Health and Childbirth/ Other disorders originating in the perinatal period, Reproductive Health and Childbirth/ Fetus and newborn affected by maternal factors and by complications of pregnancy, labour and deliver

### Interventions
Participants are randomised to receive 100mg sitagliptin or placebo. Participants are followed up after three months.

### Intervention Type
Drug

### Phase
Phase II

### Drug/device/biological/vaccine name(s)
Sitagliptin

### Primary outcome(s)
The number of colonies per thousand endometrial stromal cells after three months of the IMP determined by a clonogenic assay.

### Key secondary outcome(s))
1. Change in the expression of DPP4 at the endometrium determined by immunohistochemistry
2. RNA sequencing
3. Methylation status of implantation related genes
4. Adverse events/serious adverse events
5. Acceptability of study determined by questionnaire
6. Follow up pregnancy rates and outcomes

### Completion date
31/08/2017

## Eligibility

### Key inclusion criteria

1. Provision of informed written consent
2. History of recurrent miscarriage - 3 or more miscarriages (three or more spontaneous pregnancy losses prior to 24 weeks gestation)
3. Age 18-42 years at consent
4. Any BMI – no dose adjustment needed for BMI. BMI has no clinically meaningful effect on the pharmacokinetics of Sitagliptin.
5. Willing and able to give consent for the study and endometrial biopsy.
6. Ability to fully understand the requirements of the protocol
7. Adequate renal function , defined as Urea 2.5 – 7.8mmol/L, Creatinine 50 -90umol/L, potassium 3.5 – 5.3mmol/L, Sodium 133 -146mmol/L
8. Adequate hepatic function, defined as total protein 60 – 80g/L, Albumin 35-50g/L, Bilirubin 4-20umol/L, Alkaline Phosphatase (ALP) 35-105U/L, Alanine Transferase (ALT) 5-38 U/L
9. Negative pregnancy test on the day of randomisation

## Participant type(s)
Patient

## Healthy volunteers allowed
No

## Age group
Adult

## Lower age limit
18 years

## Upper age limit
42 years

## Sex
Female

## Total final enrolment
38

## Key exclusion criteria
1. Under 18 years of age – the safety and effectiveness of Sitagliptin in paediatric patients under 18 has not yet been established
2. Type I Diabetes – Sitagliptin should not be used in type 1 diabetes
3. Type II Diabetes – based on medical history
4. Pregnancy (tested at multiple points in trial)
5. Breast feeding – Caution is advised when prescribing Sitagliptin to breastfeeding mothers as it is not known if it is secreted in breast milk.
6. Known hypersensitivity to Sitagliptin
7. Not taking any medications with potential to react with interventional product:
7.1. Digoxin –plasma monitoring is needed if Sitagliptin used concomitantly in those at risk of digoxin toxicity
7.2. Enalapril – Sitagliptin appears to alter the hypotensive effects of enalapril
8. Previous diagnosis of pancreatitis
9. Renal impairment with eGFR<50 mL/min

10. Liver impairment, defined as any value out of normal range (total protein 60 – 80g/L, Albumin 35-50g/L, Bilirubin 4-20umol/L, Alkaline Phosphatase (ALP) 35-105U/L, Alanine Transferase (ALT) 5-38 U/L)
11. Inclusion in another intervention trial
12. Unwilling to use effective contraception for the duration of the trial (from consent)
13. Allergy/sensitivity to excipients of the IMP/placebo

### Date of first enrolment
14/09/2016

### Date of final enrolment
01/06/2017

## Locations

### Countries of recruitment
United Kingdom

England

### Study participating centre
**University Hospitals Coventry and Warwickshire NHS Trust**
Clifford Bridge Road
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CV2 2DX

## Sponsor information

### Organisation
University Hospitals Coventry and Warwickshire NHS Trust

### ROR
https://ror.org/025n38288

## Funder(s)

### Funder type
Charity

### Funder Name

Tommy's Baby Charity

### Alternative Name(s)

### Funding Body Type
Private sector organisation

### Funding Body Subtype
Other non-profit organizations

### Location
United Kingdom

# Results and Publications

### Individual participant data (IPD) sharing plan

### IPD sharing plan summary
Not provided at time of registration

### Study outputs

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| Basic results | | | 17/06/2020 | No | No |
| HRA research summary | | | 28/06/2023 | No | No |