

# Gastrointestinal hormones and genes associated to type 2 diabetes remission in non-morbid obesity after bariatric surgery

<b>Submission date</b> 21/03/2013	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 03/05/2013	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 22/05/2013	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Bariatric surgery (weight loss surgery) improves and resolves Type 2 Diabetes (T2D) by several weight-loss-independent mechanisms. Secretion of gastrointestinal hormones may contribute to this. The objective of this study is to analyze the changes in gastrointestinal hormones of less obese patients [Body mass Index (BMI) < 40 kg/m<sup>2</sup>], after two different surgery techniques. It also analyzes genetic variations (genetic polymorphisms) involved.

### Who can participate?

Men and women, aged 30-65, with T2D and BMI 30-40 kg/m<sup>2</sup>.

### What does the study involve?

Patients will be randomly allocated to one of two groups to undergo either gastric bypass (RYGB) or sleeve gastrectomy (SG). Both are routinely performed as metabolic surgery techniques. Blood samples will be collected before surgery, at 6 weeks, and at 12-months. Each time, measurements will take place every 30 minutes, for 3 hours, after a fixed liquid meal. Several hormone tests will be performed.

### What are the possible benefits and risks to participants?

Benefits are improvement of obesity and associated problems. Risks are those of a surgical intervention.

### Where is the study run from?

In two renowned bariatric surgery reference centres: Hospital Clinico San Carlos, Madrid, Spain, and Hospital Oswaldo Cruz, Sao Paulo, Brazil

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

Recruitment started on January 2013 and will continue for a period of 20 months. Participants will take part in the study for one year. However, they will be followed up for longer period.

Who is funding the study?

Funding has been provided by the Fundación Mutua Madrileña de Investigación Biomédica.

Who is the main contact?

Dr. Miguel Ángel Rubio

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## Contact information

### Type(s)

Scientific

### Contact name

Dr Miguel A. Rubio

### Contact details

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## Additional identifiers

### Protocol serial number

Fundación Mutua Madrileña de Investigación Biomédica AP 89592011

## Study information

### Scientific Title

Role of gastrointestinal hormones and genes associated to type 2 diabetes remission in non-morbid obesity after bariatric surgery. A multicentric, randomized trial using different bariatric techniques.

### Study objectives

T2D long-term remission differs between bariatric procedures, beyond the effect of weight loss and the GLP-1 response. In restrictive techniques, weight loss is still the main mechanism involved, but in bypassed procedures, liberation of other related hormones may contribute to the action of GLP-1. In RYGB, both mechanisms may coexist. Evaluation of T2D patients with only grade 1 obesity should minimize the influence of weight on the evaluation of these hormonal changes.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

The ethics committee of the Hospital Clinico San Carlos approved the study on 21st September 2011 (reference number CI-11/080-E)

## Primary study design

Interventional

## Study design

Three-year open randomized prospective trial

## Study type(s)

Other

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

Type 2 diabetes

## Interventions

Eligible patients with T2D and grade 1 obesity will be randomized to undergo either gastric bypass (RYGB) (performed laparoscopically, with a 150 cm-alimentary limb and a 100-cm-biliopancreatic limb) or sleeve gastrectomy (SG) (also performed laparoscopically, following standardized technique and a 14-Fr bougie)

## Intervention Type

Other

## Phase

Not Applicable

## Primary outcome(s)

Remission of type 2 diabetes after metabolic surgery, defined as two categories: complete remission (fasting glucose < 100 mg/dl, normal HbA1c values) and partial remission (fasting glucose 100-125 mg/dl, HbA1c < 6.5%), in both cases in the absence of active pharmacologic treatment, at each time of follow-up (T1 and T2)

## Key secondary outcome(s)

1. Changes in gastrointestinal hormones (ghrelin, insulin, glucagon, GIP, GLP-1, PYY3-36, oxyntomodulin, adiponectin, leptin and GLP-2) using values of area under the curve (AUC), for each bariatric procedure and comparison with a matched control group
2. Analysis of polymorphisms involved in type 2 diabetes and incretin metabolism

## Completion date

31/08/2014

## Eligibility

### Key inclusion criteria

1. Men and women
2. Ages 35-60
3. Type 2 diabetes diagnosed 1-10 years prior to recruitment
4. Body mass index (BMI) 30-40 kg/m<sup>2</sup>
5. C-peptide level > 1 ng/dL
6. Signed written informed consent

## Participant type(s)

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Sex**

All

**Key exclusion criteria**

1. HbA1c levels > 6.5% or > 10% at the time of recruitment
2. Creatinine levels > 1.5 mg/dL
3. Ongoing pregnancy, either at the time of recruitment or follow-up
4. Renal failure (ClCr < 50 mL/min)
5. Liver disease
6. Psychiatric disorders

**Date of first enrolment**

02/01/2013

**Date of final enrolment**

31/08/2014

## **Locations**

**Countries of recruitment**

Spain

**Study participating centre**

Department of Endocrinology and Nutrition

Madrid

Spain

28040

## **Sponsor information**

**Organisation**

Fundación Mutua Madrileña (Spain)

**ROR**

<https://ror.org/00skv9577>

# Funder(s)

## Funder type

Research organisation

## Funder Name

Fundación Mutua Madrileña de Investigación Biomédica (Spain) AP 89592011

# Results and Publications

## Individual participant data (IPD) sharing plan

### IPD sharing plan summary

Not provided at time of registration