

26 March 2025

GE Free New Zealand
WELLINGTON

For Claire Bleakley, President
By Email – claire@gefree.org.nz

Tena koe Claire,

Official Information Act Request – GM Animals

Further to your request of 6 March 2025, we have now been able to work through the questions you have asked. We have answered your questions in relation to each term you have mentioned. Those questions were:

What these terms, mean?
What is the type of outcome expression will the animals have?
What is the aim of these experimental trials?
What are the reasons for these experimental trials?
Do you have any private partners involved in any of these developments?
If so, who are they?

in relation to each of the following terms:

Cows
Histone demethylase KDM4B
Climate Smart
Light Coat

Goats
Non Mendelian Inheritance

Sheep
AI on Hooves
NANOS2
Anephrogenic sheep foetuses for xenotransplantation
Immune Compatible sheep for xenotransplantation

We believe that the third and fourth questions are asking for materially the same information, so we have responded by answering these two questions together under the Aim/Reasons response for each term. We have also answered the fifth and sixth questions together, as appropriate, under the Private partners response for each term. Our answers for the questions for each term you have raised are below:

Cows

Histone demethylase KDM4B

- Meaning - This term refers to an enzyme responsible for removing methyl groups from histones, thereby influencing chromatin structure and gene regulation.
- Outcome - The outcome is to inducibly over-express in cattle the histone demethylase KDM4B fused to a GFP reporter transgene.
- Aim/Reasons - The aim of these experimental trials is focused on fundamental studies for cellular reprogramming and genome editing.
- Private partners - No private partners were involved.

Climate Smart

- Meaning - This term refers to Climate Smart Cattle.
- Outcome - The outcome is to express naturally occurring DNA sequence variants in the *PRLR* ("SLICK") and *PMEL* genes in cattle introduced by genome editing.
- Aim/Reasons - The aim of these experimental trials is to increase the heat tolerance of dairy cattle.
- Private partners – Yes, LIC and CRV.

Light Coat

- Meaning - This term refers to lightening the coat colour of cattle and is part of the larger Climate Smart Cattle project (see above).
- Outcome - The outcome is to express naturally occurring DNA sequence variants in the *PMEL* gene in cattle introduced by genome editing.
- Aim/Reasons - The aim of these experimental trials is to lighten the coat of dairy cattle (for example, from black to brown in Friesians) and is so doing, reduce radiative heat gain and increase the heat tolerance of dairy cattle.
- Private partners - Yes, LIC and CRV.

Goats

Non Mendelian Inheritance

- Meaning - This term refers to sex transmission ratio-distortion.
- Outcome - The outcome is to express DNA constructs that affect the motility of sperm carrying either an X or Y chromosome.
- Aim/Reasons - The aim of these experimental trials is to bias the gender of offspring (for example, to produce bucks that sire female-only offspring).
- Private partners - Yes, AgGenetics

Sheep

AI on Hooves

- Meaning - This term refers to the generation of sires that transmit elite germplines via natural mating rather than AI (artificial insemination) which is difficult in the extensive sheep industry.
- Outcome - The outcome is to complement male *NANOS2* knockout embryos (see next section below) with male donor embryos, with descendant donor cells exclusively colonising the germline.
- Aim/Reasons - The aim of these experimental trials is to generate germline transmitting rams to disseminate genetic gain.
- Private partners – No private partners were involved.

NANOS2

- Meaning - This term refers to disruption of the *NANOS2* gene by genome editing.
- Outcome - The outcome is to knock-out the expression of either one or both copies of the *NANOS2* gene required for male germline development.

- Aim/Reasons - The aim of these experimental trials is to investigate the effect of *NANOS2* disruption on fertility and generate genetically sterile male host embryos for AI on Hooves (see section above).
- Private partners – No private partners were involved.

Anephrogenic sheep fetuses for xenotransplantation

- Meaning - This term refers to studies investigating the disruption of a gene critical for kidney development in sheep fetuses and the associated rescue of the vacant organ niche following embryo complementation.
- Outcome - The outcome is to knock-out the expression of the *SALL1* gene by genome editing.
- Aim/Reasons - The aim of these experimental trials is to investigate kidney development following embryo complementation in sheep.
- Private partners – No private partners were involved.

Immune Compatible sheep for xenotransplantation

- Meaning - This term refers to the generation of sheep without known xeno-antigens to improve immunological compatibility with humans.
- Outcome - The outcome is to knock-out the expression of both the *GGTA1* and *CMAH* genes in sheep by genome editing.
- Aim/Reasons - The aim of these experimental trials is to investigate the disruption of *GGTA1* and *CMAH* genes on the removal of xeno-antigens from sheep cells.
- Private partners – No private partners were involved.

If you wish to discuss any aspect of your request and our response, please feel free to contact me.

You have the right to seek an investigation and review by the Ombudsman of our response. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Yours sincerely,

Nick Barraclough
Chief Legal Counsel