Australian Government
Department of Health, Disability and Ageing
Office of the Gene Technology Regulator

Gene Technology Technical Advisory Committee
7 February 2025
Communiqué

This Communiqué covers matters considered at the 42nd videoconference of the Gene Technology Technical Advisory Committee (7 February 2025)

The Gene Technology Technical Advisory Committee (GTTAC) is a statutory advisory committee established under the *Gene Technology Act 2000* (the Act) to provide scientific and technical advice to the Gene Technology Regulator (the Regulator) and the Gene Technology Ministers' Meeting.

The Regulator seeks advice from GTTAC on licence applications to work with Genetically Modified Organisms (GMOs) and on Risk Assessment and Risk Management Plans (RARMPs) prepared for applications. The purpose of this Communiqué is to provide a brief overview of GTTAC's consideration of applications and RARMPs and, in accordance with the Gene Technology Regulations 2001, to publish committee resolutions given to the Regulator. The Communiqué also provides an overview of any other deliberations of the committee. It does not include information which is treated as Confidential Commercial Information in accordance with the Act.

DEALINGS INVOLVING THE INTENTIONAL RELEASE OF A GMO

Dealings involving the Intentional Release (DIR) of a GMO into the environment can involve a limited and controlled release (clinical trial or field trial) or a commercial (general) release.

For commercial releases, the Regulator must seek GTTAC advice twice. The first consultation is on matters to consider when preparing the RARMP and the second is on the RARMP itself. For limited and controlled releases, the Regulator must seek GTTAC advice only once on the RARMP.

The RARMP for every DIR licence application is issued for public consultation.

ADVICE ON APPLICATIONS – COMMERCIAL RELEASE

DIR-216 Application – Commercial release of *Gossypium hirsutum* genetically modified for insect resistance and herbicide tolerance

Licence application DIR-216 from Bayer CropScience Pty Ltd is for the commercial release of genetically modified (GM) cotton produced by conventional breeding of five previously approved GM parent cottons genetically modified for insect resistance and herbicide tolerance. The GM cotton would enter general commerce, including use in human food and animal feed. Food Standards Australia New Zealand has assessed and approved food made from each of the five parent GM cottons.

The Office of the Gene Technology Regulator (OGTR) is preparing a RARMP for the application and had identified the following as key issues to be considered in preparing the RARMP:

- the potential for the GM cotton to be harmful to the environment
- the potential for the GM cotton to be harmful to people through toxicity or allergenicity

- the potential for the GM cotton to be harmful to other organisms, particularly beneficial invertebrates, through toxicity
- the potential for gene flow to other cottons
- whether commercial release is likely to result in changes to agricultural practices that may have an environmental impact.

GTTAC discussed the potential for horizontal gene transfer of antibiotic resistance genes from the GMO to organisms in the environment. GTTAC considered that horizontal gene transfer of an antibiotic resistance gene is a highly unlikely event, however widespread cultivation of the GMO would increase the chance an event would take place. GTTAC discussed that GM cultivar developers should consider minimising or eliminating antibiotic resistance genes in GMOs where possible.

GTTAC noted that no new herbicide resistance genes were present in the GMO and discussed whether a new insect resistance gene in the GMO may affect insect populations. GTTAC considered it would not, noting that the GMO would replace existing insect-resistant GM cultivars.

Resolutions

- The committee agrees that the following should be included in the RARMP:
  - the potential for the GM cotton to be harmful to the environment
  - the potential for the GM cotton to be harmful to people through toxicity or allergenicity
  - the potential for the GM cotton to be harmful to other organisms, particularly beneficial invertebrates, through toxicity
  - the potential for gene flow to other cottons
  - whether commercial release is likely to result in changes to agricultural practices that may have an environmental impact.
- The committee advised that the Regulator should further consider risks associated with the potential for antibiotic resistance gene transfer.

DIR-217 Application – Commercial supply of Nadofaragene firadenovec for bladder cancer treatment

Licence application DIR-217 from Ferring Pharmaceuticals Pty Ltd is seeking approval to supply a GMO therapeutic for bladder cancer treatment. A licence is sought for import, transport, storage and disposal of the GMO. The GMO would be administered inside urology and oncology facilities in hospitals.

The OGTR is preparing a RARMP for the licence application and had identified the following as key issues to be considered in preparing the RARMP:

- potential for the GMO to be persistent in the environment
- potential for harm due to exposure of people or animals to the GMO
- potential for recombination with wild type virus resulting in a novel human adenovirus with altered characteristics.

GTTAC noted the application proposed decontaminating GMOs in patient urine by adding decontaminant to the toilet bowl after voiding. GTTAC suggested adding the decontaminant before urination would allow a more effective decontamination process.

GTTAC noted replication competent adenovirus (RCA) could be present in negligible amounts during the peri-instillation period, and recommended the Regulator raise the potential for inadvertent exposure to wildtype RCA in patients with the Therapeutic Goods Administration (TGA).

GTTAC discussed potential inadvertent exposure of infants and immunocompromised people to RCA during the period following treatment, and considered that more information may be informative to the Regulator and the TGA.

Resolutions

- The committee agrees that the following should be included in the RARMP:
    - the potential for the GMO to be persistent in the environment
    - the potential for harm due to exposure of people or animals to the GMO
    - the potential for recombination with wild type virus resulting in novel human adenovirus with altered characteristics.
- The committee advised that the Regulator should further consider the effectiveness of the decontamination process following patient urination.

DEALINGS NOT INVOLVING THE INTENTIONAL RELEASE OF A GMO

The Regulator may seek GTTAC advice on RARMPs prepared for an application for Dealings Not involving an Intentional Release (DNIR) into the environment. DNIR licences include research work with GMOs undertaken in physical containment facilities (e.g. certified by the Regulator) and clinical trials undertaken in clinical facilities.

ADVICE ON DNIR RARMPS

DNIR-712 RARMP – Prodromal disease characterisation in murine models of familial prion disease

The Florey Institute of Neuroscience and Mental Health applied for a licence to develop a GM mouse model to better understand human genetic prion diseases such as familial Creutzfeldt–Jakob disease and fatal familial insomnia. The proposed GMO dealings would not involve intentional release of GMOs to the environment.

GTTAC noted the conclusion of the RARMP is that the proposed GMO dealings pose negligible to moderate risks to the health and safety of individuals and negligible risk to the environment as a result of gene technology.

GTTAC discussed the specificity of mouse prions, and OGTR noted the GM mouse proteins are not expected to interact with human proteins. GTTAC considered there was some uncertainty about the species barrier between mice and humans that was relevant to the risk assessment.

GTTAC suggested the likelihood of inadvertent exposure or GM mouse escape could be reduced by limiting the number of facilities, people conducting the dealings, and movements of GMOs between facilities. The RARMP could also expand further upon the potential for mouse-to-mouse transfer of the GM mouse proteins, transmission of the genetic modification through breeding, and risks to laboratory staff from mouse bites.

Resolutions

- The committee agrees that the risk assessment identifies most of the risk scenarios by which the proposed dealings could potentially give rise to risks relating to the health and safety of people or the environment.
- The committee recommends that the conditions proposed in the draft licence to mitigate the risk of harm from the GMO should be revisited.
- The committee recommends that the Regulator should consider clarifying the species barrier properties between mice and humans.
- The committee recommends that the Regulator should consider requiring that detailed instructions related to the containment, handling and transport of the GMO and affected animals and tissues be made available.
- The committee recommends that the Regulator limit the number of sites related to these dealings.
- The committee recommends that the Regulator consider further the risks from animal escape and mouse-to-mouse transfer.

ENQUIRIES

For all enquiries, please call the OGTR on 1800 181 030 or email ogtr@health.gov.au.