



Australian Government

Department of Health

Therapeutic Goods Administration

Guidance 21: Medicines produced by genetic manipulation

Previously ARGPM Appendix 21: Medicines
produced by genetic manipulation

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TGA Health Safety
Regulation

Check the TGA website for up-to-date guidance

The most up-to-date information about prescription medicine registration in Australia is on the [TGA website](http://www.tga.gov.au) <<http://www.tga.gov.au>>. Now that guidance is presented in a series of web pages, updates are likely to be more common than in the past. If you subscribe to the TGA guidelines email alert service, you will be emailed every time the TGA web guidance is updated.

TGA web pages are dated, and can be printed.

A PDF format is being provided during the transition between the former version of the ARGPM (Australian Regulatory Guidelines for Prescription Medicines) and the new web format. Please note that information in the PDF should not be relied upon to be up-to-date.

About the Therapeutic Goods Administration (TGA)

- The Therapeutic Goods Administration (TGA) is part of the Australian Government Department of Health, and is responsible for regulating medicines and medical devices.
- The TGA administers the *Therapeutic Goods Act 1989* (the Act), applying a risk management approach designed to ensure therapeutic goods supplied in Australia meet acceptable standards of quality, safety and efficacy (performance), when necessary.
- The work of the TGA is based on applying scientific and clinical expertise to decision-making, to ensure that the benefits to consumers outweigh any risks associated with the use of medicines and medical devices.
- The TGA relies on the public, healthcare professionals and industry to report problems with medicines or medical devices. TGA investigates reports received by it to determine any necessary regulatory action.
- To report a problem with a medicine or medical device, please see the information on the TGA website <<http://www.tga.gov.au>>.

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Version history

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Introduction

This information applies to prescription medicines that contain, or are produced by, [genetically modified organisms](#) (GMOs).

It does not apply to cell-based and tissue-based therapies that are defined as biologicals in the [Therapeutic Goods Act 1989](#) and its amendments, and which are therefore regulated under the [Biologicals Regulatory Framework](#).

21.1 What are medicines produced by genetic manipulation?

Medicines produced by genetic manipulation can be divided into two broad categories:

- Medicines derived or produced from GMOs ([biological medicines](#)).
- GMOs that are intended for use as medicinal agents ([GMO medicines](#)).

21.2 The regulation of genetically modified organisms

In Australia, dealings with GMOs, including research, manufacture, propagation and importation, are prohibited unless explicitly authorised under the [Gene Technology Act 2000](#) in order to protect human health and safety, and the environment.

This includes all dealings with live, viable GMOs, including those intended for use as, or in the manufacturing or testing of medicines.

[The Office of the Gene Technology Regulator](#) (OGTR) administers the *Gene Technology Act 2000*, and maintains a publicly accessible [record of all dealings in Australia](#) that involve GMOs or GM products (the Record).

The Record includes information on all GM products that are approved for supply in Australia under a number of Acts, including therapeutic goods containing GM products that are approved for supply under the [Therapeutic Goods Act 1989](#).

The TGA is required to inform the Office of Gene Technology Regulator about applications for the supply of therapeutic goods that contain GMOs.

21.2.1 Applications for a GMO/biological medicine

Sponsors intending to submit applications to the TGA for a GMO as a medicine or biological medicine (including use in a clinical trial) must:

- consult the OGTR to determine any obligations under the [Gene Technology Act 2000](#)
- indicate whether an application has been lodged with the OGTR to have the information required for the Record declared to be confidential commercial information.

Related information and guidance

- [OGTR website](#)

21.3 Biological medicines

Biological medicines are therapeutic goods that are derived from biological sources (including GMOs and GM products) and are regulated as registered prescription medicines. Examples include:

- vaccines
- antivenoms
- bacteria derived toxins
- Immunoglobulins
- monoclonal antibodies
- allergens
- blood products and clotting factors
- hormones such as insulin, growth hormone,
- enzymes such as pancreatins
- heparins.

These medicines are not biologicals (as defined in the [Therapeutic Goods Act 1989](#) and its amendments) and are therefore not regulated under the Biologicals Regulatory Framework.

Guidance on quality issues for recombinant or biotechnological medicines is provided in European Union guidelines. These include:

- [Production and quality control of medicinal products derived by recombinant DNA technology](#) (pp. 205–216 of Rules 1998 (3A)–3AB1a)
- [Production and quality control of cytokine products derived by biotechnological processes](#) (pp. 223–235 of Rules 1998 (3A)–3AB3a)
- [Use of transgenic animals in the manufacture of biological medicinal products for human use](#) (pp. 287–294 of Rules 1998 (3A)–3AB7a)
- [Position statement on the use of tumourigenic cells of human origin for the production of biological and biotechnological medicinal products](#) (CPMP/BWP/1143/00)
- [Note for guidance on quality of biotechnological products: viral safety evaluation of biotechnology products derived from cell lines of human or animal origin](#) (CPMP/ICH/295/95)
- [Quality of biotechnological products: analysis of the expression construct in cell lines used for production of rDNA derived protein products](#) (pp. 217–222 of Rules 1998 (3A)–3AB2a)
- [Quality of biotechnological products: stability testing of biotechnological/biological products](#) (pp. 263–273 of Rules 1998 (3A)–3AB5a)
- [Development pharmaceuticals for biotechnological and biological products \(annex to Note for guidance on development pharmaceuticals\)](#) (CPMP/BWP/328/99)
- [Note for guidance on quality of biotechnological products: derivation and characterisation of cell substrates used for production of biotechnological/biological products](#) (CPMP/ICH/294/95)

- [Note for guidance on specifications: test procedures and acceptance criteria for biotechnological/biological products](#) (CPMP/ICH/365/96).

21.4 GMO medicines

GMO medicines may include:

- live attenuated vaccines (viral or bacterial)
- viral vectors
- modified somatic cells.

Sponsors who intend to use GMOs in gene therapy should refer to the relevant European Union guidelines including:

- [Note for guidance on the quality, preclinical and clinical aspects of gene transfer medicinal products](#) (CPMP/BWP/3088/99)
- [Gene therapy product quality aspects in the production of vectors and genetically modified somatic cells](#) (pp. 275–286 of Rules 1998 (3A)–3AB6a).

21.5 Special requirement for testing of biological medicines using GMOs

A number of biological medicines use GM cell lines to test the potency of the medicine (e.g. luciferase reporter cell lines). If the testing is done in Australia, sponsors require authorisation under the *Gene Technology Act 2000* to use the GM cell line.

Small-scale dealings (less than 25 litres per vessel) with the majority of GM cell lines have been declared exempt from licensing under [Schedule 2 of the Gene Technology Regulations 2001](#).

Sponsors must:

- assess whether the required testing would be exempt under the *Gene Technology Act 2000*, or would require further authorisation
- submit this assessment as part of any Category 1 application.

21.5.1 All biological medicines

Registration of biological medicines often includes a condition that information and samples of individual batches are to be provided to the TGA for analysis/assessment prior to supply to the market.



Note

Sponsors are responsible for the GMO import, and OGTR authorisation and should alert the TGA about the use of GM cell lines in testing of the medicine early in the evaluation phase by emailing biochemistry.testing@tga.gov.au.

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