Australian Government
Department of Health
Office of the Gene Technology Regulator

19 April 2021

Summary of the Risk Assessment and Risk Management Plan

for

Licence Application DIR 182

Decision

The Gene Technology Regulator (the Regulator) has received a licence application (DIR 182) for import, transport, storage and disposal of a genetically modified (GM) COVID-19 vaccine, as part of its commercial supply as a human vaccine. These activities are classified as Dealings involving the Intentional Release (DIR) of genetically modified organisms into the Australian environment under the *Gene Technology Act 2000*.

Before the GM vaccine can be used, Janssen-Cilag Pty Ltd must also obtain regulatory approval from the Therapeutic Goods Administration (TGA). Therapeutic goods for sale in Australia must be included in the Australian Register of Therapeutic Goods (ARTG) under the *Therapeutic Goods Act 1989*. The TGA will be responsible for assessing patient safety; quality and efficacy of the vaccine prior to including the GM vaccine on the ARTG. In addition, approval from the Department of Agriculture, Water and the Environment will also be required for the importation of the GM vaccine.

The Regulator has prepared a Risk Assessment and Risk Management Plan (RARMP) for this application, which concludes that the proposed supply of the GM vaccine poses negligible risks to human health and safety and the environment, and no specific risk treatment measures are imposed. However, general licence conditions have been imposed to ensure that there is ongoing oversight of the proposed supply

The application

Application number	DIR-182
Applicant	Janssen-Cilag Pty Ltd
Project title	Commercial supply of recombinant COVID-19 vaccine (Ad26.COV.S)
Parent organism	Human adenovirus 26

Introduced gene and modified trait	• Deletion of:
	  ○ E1 gene (renders virus unable to multiply)
	  ○ Large portions of the E3 region (increases immune response to virus and virus production during manufacture)
	• Partial substitution of E4 gene with the corresponding gene from the human adenovirus 5 (improves virus yield during manufacture)
	• Insertion of a gene based on the SARS-CoV-2 spike protein (expresses spike protein)

Approved clinical trials	Phase I, I/II and III clinical trials with the GM vaccine Ad26.CoV2.S (also known as JNJ-78436735, Ad26COVS1 or VAC31518) are currently being conducted in several countries including the United States, Belgium, Columbia, France, Germany, Japan, Philippines, South Africa, Spain and the United Kingdom to assess the safety and efficacy of the vaccine in adults between 18-55 years and over 65 years.
Current approvals	• As of 29 March 2021, this GM vaccine has been approved for conditional or emergency use in Bahrain, Canada, European Union, South Africa, Switzerland and United States of America.
Proposed locations	Australia-wide
Primary purpose	Commercial supply of the GM COVID-19 vaccine

Risk assessment

The risk assessment concludes that risks to the health and safety of people or the environment from the proposed short or long term supply are negligible. No specific risk treatment measures are required to manage these negligible risks.

The current assessment focuses on risks posed to people other than the intended vaccine recipient and to the environment, which may arise from the import, transport, storage or disposal of the GMO. The risk assessment process considers how the genetic modification and activities conducted with the GM vaccine in the context of import, transport, storage and disposal might lead to harm to people or the environment. Risks are characterised in relation to both the seriousness and likelihood of harm, taking into account information in the application, relevant previous approvals, current scientific knowledge and advice received from a wide range of experts, agencies and authorities consulted on the preparation of the RARMP. Both the short and long term risks were considered.

Credible pathways to potential harm that were considered include the; potential exposure of people and animals to the GMO; the potential for the GMO to recombine with other similar viruses or to get genes from those viruses; and the potential for the GMO to integrate into the host genome. The potential for the GMO to be released into the environment and its effects were also considered.

The principal reasons for the conclusion of negligible risks associated with import, transport, storage and disposal of the GMO are:

- The GMO is replication incompetent which will prevent it from multiplying in other cells;
- The GMO would be restricted to the site of injection and/or draining lymph nodes and would not be shed from the vaccine recipients;
- The likelihood of accidental exposure to the GMO in people not being vaccinated (non-vaccinees) would be minimised due to well-established import, transport, storage and disposal procedures; and
- The likelihood of complementation and recombination of GMO with other adenoviruses is very low.

Risk management

The risk management plan concludes that risks from the proposed dealings can be managed so that people and the environment are protected by imposing general conditions to ensure that there is ongoing oversight of the vaccine containing the GMO.

Risk management is used to protect the health and safety of people and to protect the environment by controlling or mitigating risk. The risk management plan evaluates and treats identified risks and considers general risk management measures. The risk management plan is given effect through licence conditions.

As the level of risk was assessed as negligible, specific risk treatment is not required. However, the Regulator has drafted licence conditions regarding post-release review (post-market surveillance) to ensure that there is ongoing oversight of the supply of the GM COVID-19 vaccine and to allow the collection of ongoing information to verify the findings of the RARMP. The licence also contains a number of general conditions relating to ongoing licence holder suitability, auditing and monitoring, and reporting requirements, which include an obligation to report any unintended effects.