Title	**Demonstrate and apply knowledge of the immune system**		
Level	**6**	**Credits**	**6**

Purpose	People credited with this unit standard are able to: describe the non-specific immune response in a mammal; describe the specific defence mechanisms in a mammal; describe production of monoclonal antibodies; perform agglutination and a precipitation procedure; and perform an immunological procedure.

Classification	Science > Immunology

Available grade	Achieved

Guidance Information

1 All work must be carried out in accordance with the quality management system, documented protocol system or Standard Operating Procedures (SOP) acceptable in a commercial or research laboratory.

2 Health and Safety practices must conform to Australian/New Zealand Standard AS/NZS 2243 – *Safety in Laboratories* Parts 1, 2, 3, 7 and 10 available at http://www.standards.co.nz/.

3 Legislation applicable to this unit standard includes:
Health and Safety at Work Act 2015;
Hazardous Substances and New Organisms Act 1996.

4 Glossary
Laboratory procedures refer to documented systems or processes of operation which may be found in a SOP manual, quality management system, or in protocol system documentation. These procedures are external and/or internal laboratory requirements governing laboratory work;
Non-specific immune response refers to the innate immune response.

5 Recommended for entry: Unit 8029, *Work safely in a microbiological laboratory*; and Unit 8040, *Perform aseptic laboratory techniques*.

Outcomes and performance criteria

Outcome 1

Describe the non-specific immune response in a mammal.

Performance criteria

1.1 Non-specific defences of the mammal are described in terms of the immune response.

Range complement, increased body temperature, phagocytosis and the local inflammatory response, physical barriers, chemical inhibitors.

Outcome 2

Describe the specific defence mechanisms in a mammal.

Performance criteria

2.1 Specific defences are outlined in terms of the response to the presence of antigens.

Range B lymphocytes, T lymphocytes, immunoglobulins, primary and secondary immunological response, antigen presenting cells, cell surface receptors, cytokines, chemokines.

2.2 Classification of mammalian antibodies is described in terms of structure and function.

2.3 The role of the immune response is described in relation to vaccination.

Outcome 3

Describe production of monoclonal antibodies.

Performance criteria

3.1 Commercial monoclonal antibodies production is described in terms of using hybridomas.

3.2 Monoclonal antibodies are described in terms of serological applications.

Outcome 4

Perform agglutination and a precipitation procedure.

Performance criteria

4.1 Agglutination and precipitation are carried out in accordance with laboratory procedures.

4.2 Results are recorded and analysed in accordance with laboratory procedures.

4.3 Interpretation is consistent with results and sample.

Outcome 5

Perform an immunological procedure.

Performance criteria

5.1 Procedure is carried out in accordance with laboratory procedures.

Range one of – radial immunodiffusion (RID), enzyme linked immunosorbent assay (ELISA), radioimmunoassay (RIA), immunoelectrophoresis, immunoaffinity chromatography, western blotting, fluorescent antibody labelling.

5.2 Results are recorded and analysed in accordance with laboratory procedures.

5.3 Interpretation is consistent with results and sample.

Replacement information	This unit standard replaced unit standard 8026 and unit standard 8031.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 September 2010	31 December 2025
Rollover	2	27 January 2015	31 December 2025
Review	3	27 September 2018	31 December 2025
Review	4	30 November 2023	31 December 2025

Consent and Moderation Requirements (CMR) reference	0113

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.