

<b>Title</b>	<b>Apply principles of bacterial identification</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>6</b>

<b>Purpose</b>	People credited with this unit standard are able to: establish a pure culture from a mixed culture sample; perform identification processes; apply knowledge of Linnaean taxonomy to identify bacteria; perform identification processes to species level using a proprietary method; and discuss the use of alternative means of bacterial identification.
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<b>Classification</b>	Science > Microbiology
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<b>Available grade</b>	Achieved
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### 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> and <http://infostore.saiglobal.com/store>.
- 3 Legislation applicable to this unit standard includes:  
Health and Safety at Work Act 2015;  
Hazardous Substances and New Organisms Act 1996.
- 4 The underpinning knowledge for this unit standard is how the knowledge of structure, physiology, and metabolism relate to the classification and identification of bacteria.
- 5 The bacteria used for assessment must be a known species.
- 6 Glossary  
*Proprietary method* refers to rapid identification systems.  
*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.
- 7 Recommended for entry: Unit 8040, *Perform aseptic laboratory techniques*; and Unit 26117, *Work safely in a science laboratory*.

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## Outcomes and performance criteria

### Outcome 1

Establish a pure culture from a mixed culture sample.

#### Performance criteria

- 1.1 Media are selected consistent with the sample in accordance with laboratory procedures.
- 1.2 Bacteria are plated out to achieve isolated colonies in accordance with laboratory procedures.

### Outcome 2

Perform identification processes.

#### Performance criteria

- 2.1 Bacteria are identified and confirmed using selected tests in accordance with laboratory procedures.  
  
Range may include – selective media, differential media, Gram stain, motility, atmospheric growth requirements, oxidase, catalase, oxidation-fermentation, sugar utilisation including gas production, nitrate reduction, urease, acid fast, coagulase, methyl red, Vogues Proskauer.
- 2.2 Selected identification tests and results for the bacteria are documented in accordance with laboratory procedures.

### Outcome 3

Apply knowledge of Linnaean taxonomy to identify bacteria.

#### Performance criteria

- 3.1 Characteristics of a named bacterium are distinguished according to Linnaean Taxonomy.
- 3.2 Bacterium is identified from a given set of characteristics according to Linnaean Taxonomy.
- 3.3 Identification steps and results are documented in accordance with laboratory procedures.

### Outcome 4

Perform identification processes to species level using a proprietary method.

**Performance criteria**

- 4.1 Proprietary method is selected consistent with predicted bacteria.
- 4.2 Bacteria are identified using the selected test and associated proprietary methods for the interpretation of results to species level.
- 4.3 Identification steps and results are documented in accordance with laboratory procedures.

**Outcome 5**

Discuss the use of alternative means of bacterial identification.

**Performance criteria**

- 5.1 Techniques are discussed in terms of bacterial identification.
- Range techniques include – ribotyping, immunological; serotyping.

<b>Planned review date</b>	31 December 2023
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	22 December 1996	31 December 2014
Review	2	24 February 1998	31 December 2014
Review	3	23 November 1999	31 December 2014
Review	4	21 May 2010	N/A
Rollover	5	27 January 2015	N/A
Review	6	27 September 2018	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0113
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact NZQA National Qualifications Services [nqs@nzqa.govt.nz](mailto:nqs@nzqa.govt.nz) if you wish to suggest changes to the content of this unit standard.