National Argon Map: an AuScope Initiative
$^{40}Ar/^{39}Ar$ Geochronology Laboratory Sample Submission Form

This form must be completed and returned to Marnie Forster (Marnie.Forster@anu.edu.au) before any work can be commenced in the Argon Laboratories.

Person submitting samples: Roland Maas
Affiliation: School of Geography, Earth and Athmospheric Sciences, Univ. of Melbourne
Project Title: *Timing of Devonian granitic magmatism across the northern part of the mid/lower crustal Selwyn Block, western Lachlan Fold Belt*
Sample Number(s) (including IGSN if one exists): MB-1 (Mt.Black Granite)
Mineral separation required? Yes or No: no
Date submitted: March 2021

GEOGRAPHIC AREA/ PROVINCE/ BASIN : western Lachlan Fold Belt	
1:250k SHEET NAME: Bendigo	**NUMBER:** GSV Cat. NO. 29416
1:100k SHEET NAME: Heathcote and parts of Woodend and Echuca 1:100000 map Geological interpretation of geophysical results	**NUMBER:** 7824, and parts of 7823, 7825
LOCATION METHOD: (GPS: WGS84 / AGD66 / AGD84 / GDA94)	
ZONE: 55	
EASTING:	**NORTHING:**
LATITUDE: -36.7859	**LONGITUDE:** 144.98366

STRATIGRAPHIC UNIT FORMAL NAME *: Mount Black Granite (GSV granite number 288)
STRATIGRAPHIC UNIT INFORMAL NAME: same
LITHOLOGY: S-type granite

DRILLHOLE ID (if applicable):
PROSPECT (if applicable):
DEPTH FROM (metres):
DEPTH TO (metres):

* Stratigraphic Unit names can be searched and checked within the Australian Stratigraphic Units Database via the following link: https://asud.ga.gov.au/

Dating Objective

What is the geological question $^{40}Ar/^{39}Ar$ analysis will address?

Detailed timing of Devonian granitic magmatism in northern part of Bendigo, Melbourne and Tabberabbera Zones

What type of age(s) are expected? (e.g. magmatic crystallisation, metamorphism, fluid alteration/mineralisation, cooling, shearing etc):

Mica cooling age, approximates magmatic crystallization, no issues with smearing of ages often observed for U-Pb zircon

Mineral target(s) for dating:

Biotite

Estimated $^{40}Ar/^{39}Ar$ age (e.g. Cenozoic, Mesozoic, Paleozoic, Proterozoic, Archean – provide estimated numerical age range if possible):

Late Devonian, 365-380 Ma

Sample Information

Location description (e.g. a sample of x was collected from y, z km from abc town):

Disused small quarry, Mt Black Quarry Rd, 4 km north from turnoff at Heathcote-Nagambie Rd (C344)

Lithological characteristics (rock description):

Very fresh, medium-grained granite

Relative age constraints (pertinent geological relationships with surrounding rock units and any previous geochronology):

The Mt Black Granite is a small (1 km diameter) body emplaced within Lower Devonian Puckapunyal Formation. Based on magnetic data, the outcrop area of the small Mt Black pluton appears to be within a much larger (equally post-tectonic) granite at depth (see Edwards et al 1998)

Thin section description (if available):

n/a

Photograph(s) e.g. field site, hand-specimen, photomicrograph:

n/a

Relevant bibliographic references:

Edwards et al 1998 Heathcote and parts of Woodend and Echuca. 1:100000 map area geological report. Report of the Geological Survey of Victoria 108

Rossiter 2003 Granitic rocks of the Lachlan Fold Belt in Victoria. In: WD Birch (ed) Geology of Victoria, Geological Association of Victoria Special Publication 23, 217-237