

Virology Research Laboratory, UNSW/POWH

Respiratory Virus Group

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Interests:

- Picornaviruses including enterovirus and rhinovirus
- Influenza viruses
- Point of care (POC) diagnostics
- Outbreak and pandemic investigations
- Infectious disease surveillance
- Vulnerable sub-populations

Specialities:

- Whole genome sequencing
- Viral culture
- Clinical and epidemiological studies
- New diagnostics

Research:

1. Surveillance and whole genome sequencing of enteroviruses in NSW

Some enterovirus subtypes cause severe neurological disease including meningitis, encephalitis and acute flaccid myelitis (AFM).

In order to track virus genome change and respond rapidly to outbreaks, we perform NSW surveillance of circulating enteroviruses to inform vaccine design, monitor outbreaks and develop optimised serotyping diagnostic protocol. **One Honours Project available.**

2. Development of novel point-of-care (POC) diagnostic tests

Novel POC tests that are rapid, sensitive and affordable have the potential to enable better patient outcomes through prompt diagnosis and treatment. In collaboration with Prof Justin Gooding & colleagues from UNSW Chemistry, we are developing highly sensitive nanoparticle based diagnostic tests to detect viruses such as SARS-CoV-2.

Figure 2. COVID-19 helped spur the integration of nanotechnology with wearables and smartphones to develop smart nanobiosensors (from Gowri et al Trends Analyt Chem. (2021)).

3. Respiratory viral infections in vulnerable populations (Aged care study and Carrageenan Study, New Zealand)

We have collaborations with Prof Raina McIntyre (Kirby UNSW), Prof Christine Jenkins (The George Institute), Prof Julian Crane (University of Otago, New Zealand) to study respiratory infections in patients with asthma, chronic obstructive pulmonary disease, and the elderly.

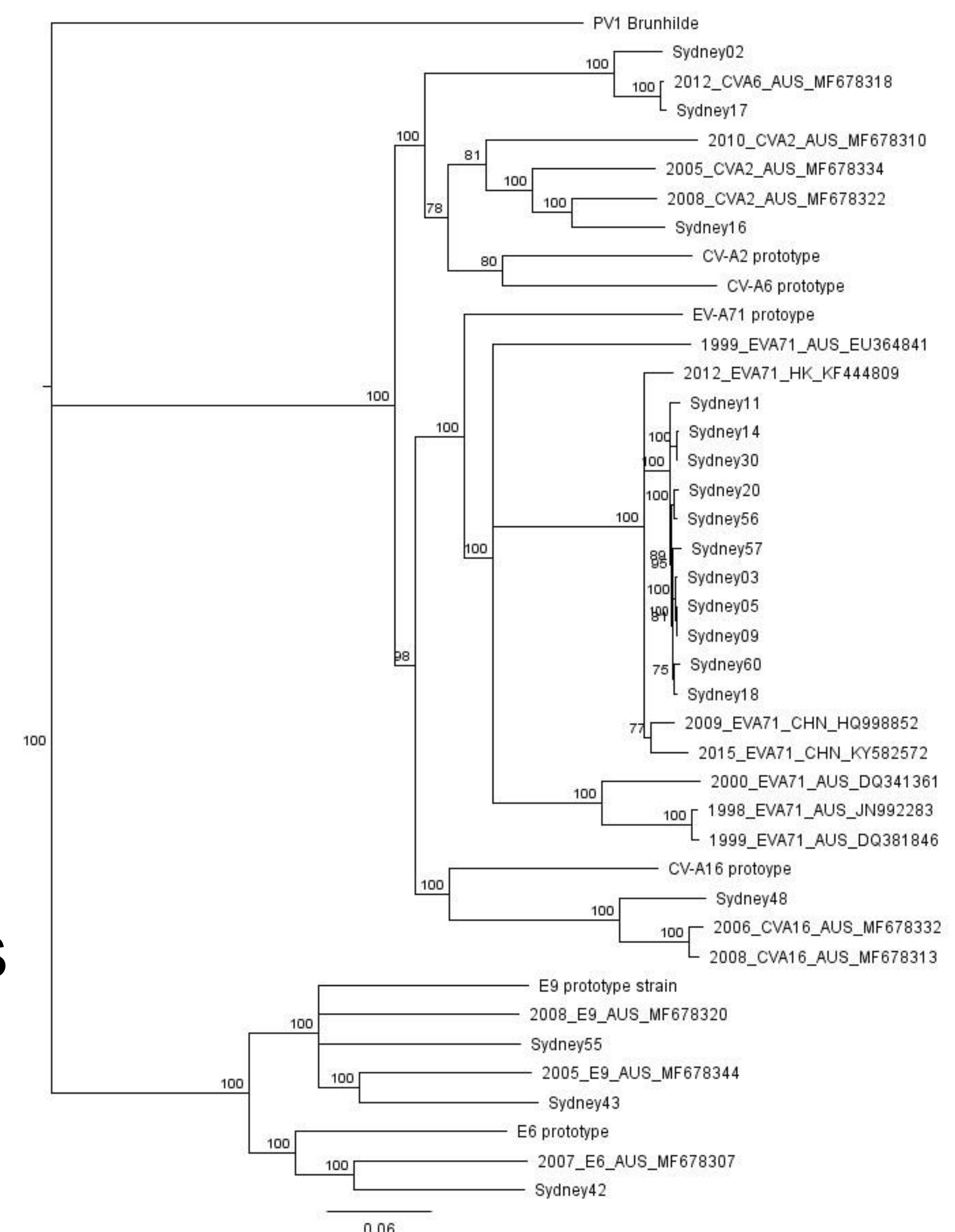


Figure 1. Phylogenetic tree of Sydney 2013 enterovirus outbreak (from Stelzer-Braid et al J Clin Virol. (2020))



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