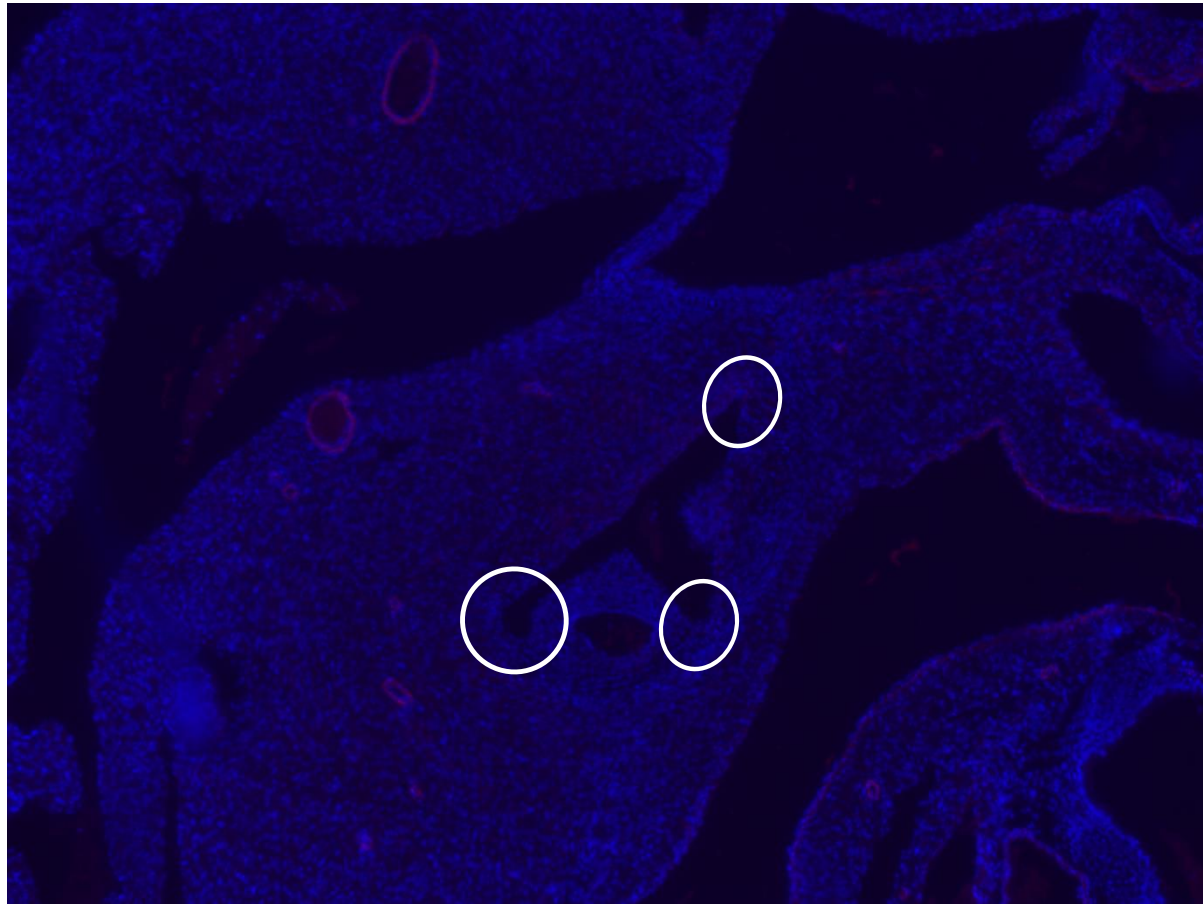


Investigation of the genetic origin of aortic valve 'triangles' in mice

Qi Jia ONG, q.j.ong@ncl.ac.uk

Aim

To Investigate the genetic origin of the 'triangles' of tissue between the aortic heart valves.



Pic. 1

A cross sectional view of an E17.5 mouse heart just below the level of the aortic valves. Aortic 'triangles' are the regions circled in white.

Method

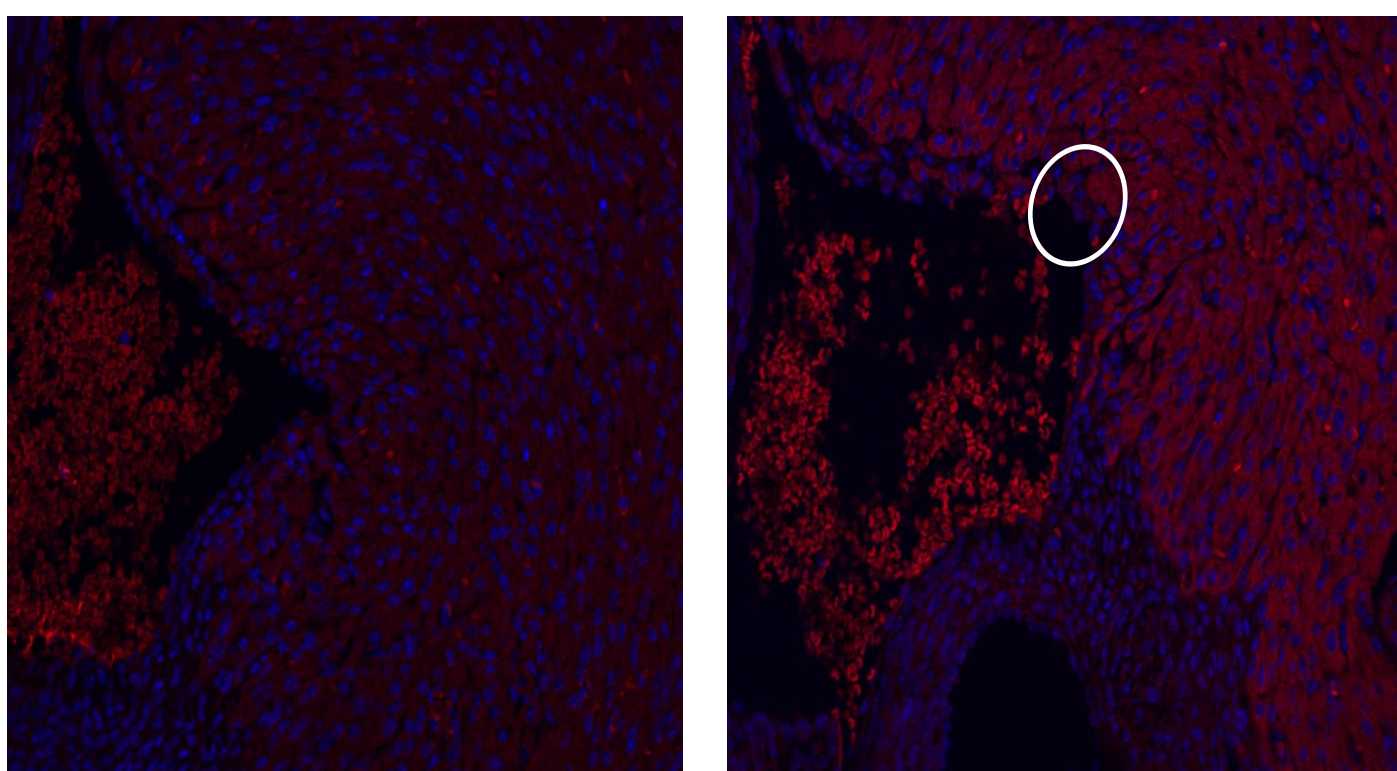
Hearts from mice aged E17.5 and P2 were harvested, embedded in wax, sectioned and were used for Immunohistochemistry staining,

In order to determine whether the 'triangles' were of myocardial or vascular origin, the hearts were stained using MF20 and alpha SMA. MF20 is a monoclonal antibody which recognizes the heavy chain of myosin present in myocardial tissue, whereas alpha SMA binds to actin found in smooth muscles (indicative of vascular tissue).

Fluorescent secondary antibodies which would bind to MF20 or alpha SMA were then used to dye the samples to enable the viewing of any positive results.

Findings:

E17.5 (-) MF20 staining using Alexa 594

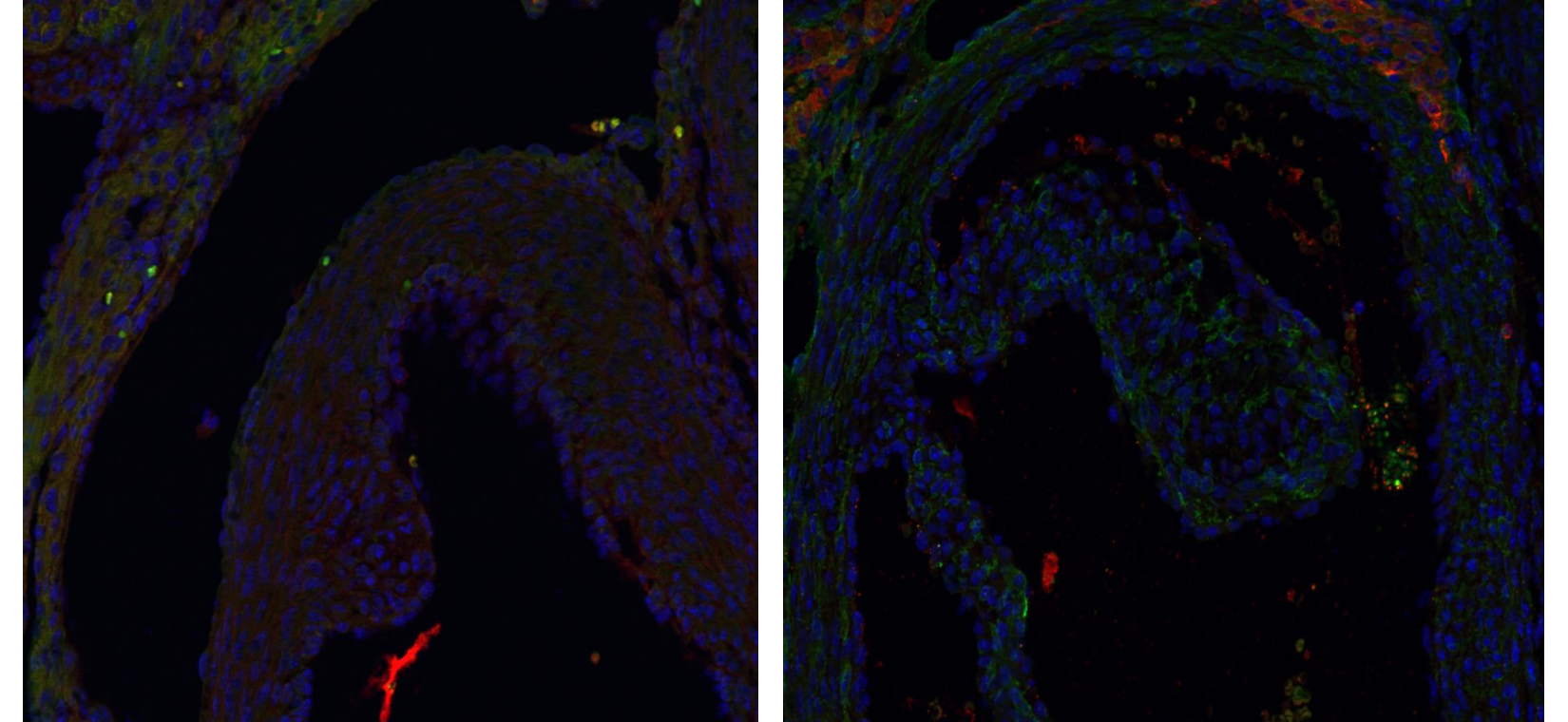


X20 magnification
L: Secondary
R: Primary + Secondary

Pic. 2

These photographs are of a section of an E17.5 mouse aorta at the level of the 'triangles' stained for MF20 using a red fluorescent marker (Alexa 594) at x20 magnification. The photo on the right indicates a positive test for MF20 at the 'triangles' (circled white).

P2 MF20 Staining using Alexa 594

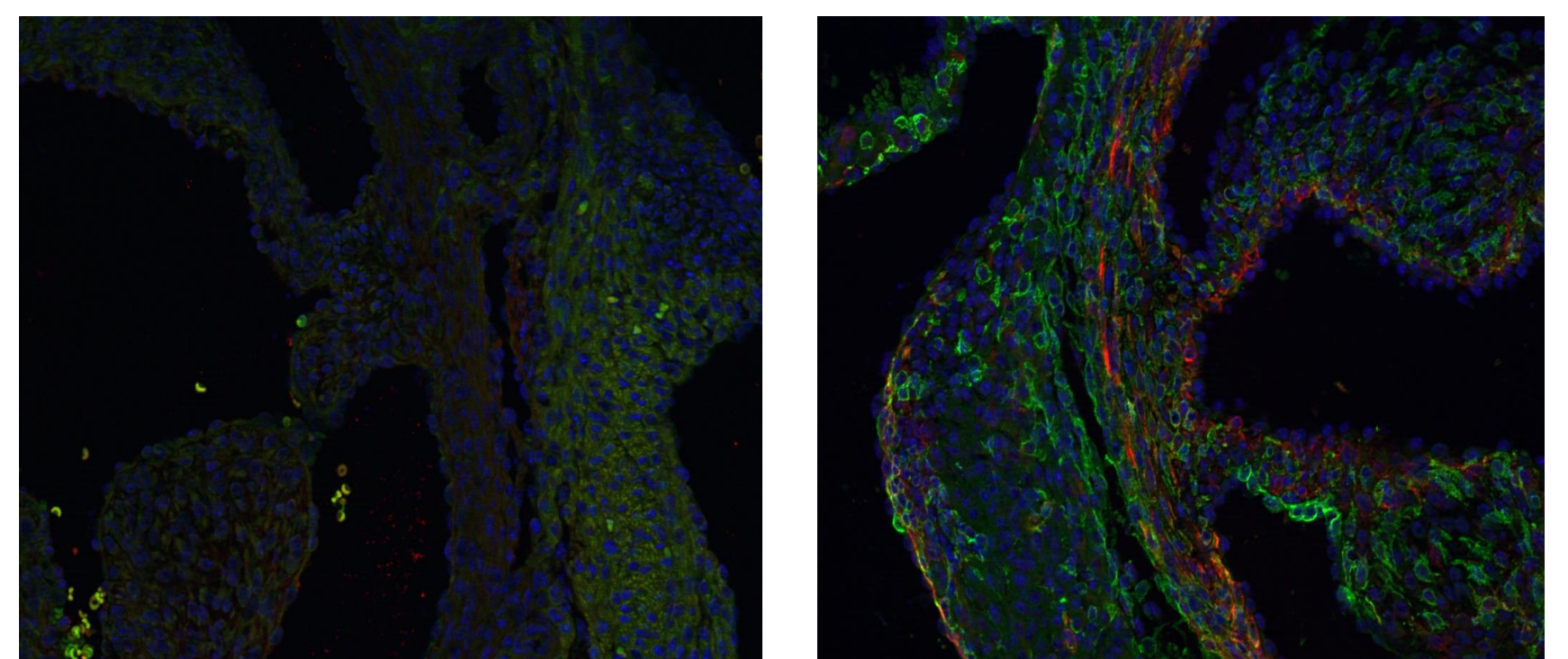


- X20 Magnification
- L: Secondary
- R: Primary + Secondary

Pic.3

These photographs show the 'triangles' from a P2 mouse stained for MF20 using Alexa 594 (red) to indicate MF20. The pictures show a negative stain for MF20 at P2.

P2 SMA Staining using Alexa 594



- X20 Magnification
- L: Secondary
- R: Primary + Secondary

Pic. 4. These photographs show the 'triangles' from a P2 mouse stained for SMA using Alexa 594 (red) to indicate alpha-SMA. The pictures show a negative stain for alpha SMA at P2.

Conclusion

The triangles stained positively for MF20 at E17.5 but not at P2, while staining negatively for alpha SMA at both E17.5 and P2.

This infers that the 'triangles' are of myocardial origin at E17.5, but are replaced by other types of cells at P2. However, further evidence and study is needed before a conclusion can be reached.