During cardiogenesis two major isoforms of myosin light chain 2 are co-expressed in a tightly regulated manner. MLC-2A is only present in the atrium while MLC-2V is exclusively expressed in the ventricle. Knock out studies revealed that the 2A isoform cannot substitute for the 2V variant in the ventricular chamber.

Recently it has been demonstrated that embryonic and adult stem cells can be differentiated into cardiomyocytes which may generate suitable replacements for damaged heart tissue in the future. This monoclonal antibody is a useful tool to distinguish between ventricle and atrium specific cardiomyocytes.
Protocol for immunohistochemistry for MLC-2A antibodies

mouse monoclonal antibody (Cl. 56F5); purified IgG; cat. no. 311 011

Deparaffinization and rehydration:
- Incubate sections with xylene twice for 5-10min.
- Incubate section with acetone once for 10min.
- Incubate section with acetone diluted 1:2 with TBS pH 7.6 once for 10min.
- Incubate section with TBS once for 10min.
- Rinse slides in dest. H2O.

Antigen retrieval: is necessary
- Microwave sections for 15 min in freshly mixed 10 mM citrate buffer, pH 6.0 to retrieve the antigen.
- Cool slides slowly to RT (20-30min).
- Rinse slides in PBS:
  - Citrate buffer: A: 21.01g citric acid in 1000ml dest. H2O
    - B: 29.41g sodium citrate in 1000ml dest. H2O
    - Mix 9ml A with 41ml B and 450ml dest. H2O. Adjust the pH to 6.0.

Immunofluorescence:
- Block sections in 10% normal goat serum in PBS (30min at RT).
- Remove blocking solution and incubate sections overnight at 4°C with the primary antibody (anti-MLC-2V) in PBS / 2% BSA at a dilution of 1:200 (5µg/ml).
- Remove primary antibody and wash thoroughly with PBS +BSA 3 times for 5min.
- Incubate with the secondary antibody for 1h at RT.
- Remove secondary antibody and wash thoroughly with PBS + BSA 3 times for 5min.
- Mount slices and examine microscopically.