

## The Ultrastructure of Heart in Health and Disease

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### Abstract

Cardiac cases referred to general diagnostic electron microscopy facilities are infrequent compared to other tissues eg renal, cilia and muscle.

Samples can come via different routes, for example:

- A right ventricular septal endomyocardial biopsy can be taken by a cardiologist investigating an adult for possible acquired restrictive cardiomyopathy eg light chain associated amyloid etc.
- An explanted heart from a heart transplant recipient eg for a dilated cardiomyopathy.
- A septal resection surgical specimen from an adult with a hypertrophic cardiomyopathy eg Danon disease etc.
- A post mortem sample: from an infant eg with a severe mitochondrial disease, or an early adolescent eg with a viral myocarditis or an adult with sudden death where no cause has been found - so as to leave no stone left unturned.

All of these cases will have had conventional histology in addition – some of which will show a difficult to interpret abnormality eg an inclusion or vacuolation. Cardiac Pathologists have different thresholds for requesting EM and the electron microscopist who is fully competent in skeletal muscle pathology and ultrastructural postmortem artifact will be more likely to make a contribution to a diagnosis than one who isn't.