

P006 The molecular assembly of the *area composita* of adhering junctions connecting mammalian cardiomyocytes:
The special importance of plakophilin-2

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In the adult mammalian heart, the cardiomyocytes are connected by large arrays of closely spaced or even fused adhering junctions, termed “intercalated disks” (IDs). Previously, we have shown that in the mature ID the compositional differences between desmosome-like and *fascia adhaerens*-like junctions are, by and large, lost and a composite structure, the *area composita* (AC), is postnatally formed. We now report results from biochemical analyses and molecular biological experiments, using siRNA techniques and cultured rat cardiomyocytes, which demonstrate the regulatory and topogenic role of plakophilin-2 in AC formation and myofibrillar anchorage. We discuss our results in relation to recent findings of the special importance of the desmosomal proteins in the maintenance of AC structures and functions, as also demonstrated by the very high proportion of human hereditary cardiomyopathies caused by mutations in genes encoding such proteins, in particular the gene for plakophilin-2.