

Possible Coexpression of C-Kit and Myosin in Interstitial Cells of Cajal

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Interstitial Cells of Cajal (ICC) are cells present in the digestive tract that are involved in producing the electric pacemaker activity for gastrointestinal (GI) smooth muscle motility. The pacemaker activity generated by ICC is evident through slow waves in membrane potential that have been shown to regulate GI peristaltic activity. While this physiological function of ICC is known, it is currently unknown whether ICC themselves are contractile in nature.

Since ICC uniquely express C-Kit, a protooncogene that serves as a light microscopic marker for such cells, ICC are a good candidate for immunohistochemical studies. In this study, double label immunohistochemistry was performed on mouse ileum samples using antibodies against C-Kit and various myosin isoforms to look for colocalization within the same cell, which would support the hypothesis that ICC contain myosin and are therefore contractile in nature.

Preliminary data shows colocalization of C-Kit with non-muscle myosin in mouse ileum ICC. Additionally, possible colocalization of C-Kit with smooth muscle myosin heavy chain SMB in mouse ileum ICC was observed. The colocalization observed in these experiments is not definitive because of the limited resolution at the light microscopic level. Further analysis with confocal microscopy may resolve this issue. Colocalization of C-Kit with non-muscle myosin and SMB in mouse ileum ICC suggests they may be contractile.