5-21-2012

Development of Myogenic IAS Reconstructs from Human Internal Anal Sphincter (IAS) Smooth Muscle Cells (SMCs) with Functional and Molecular Properties Similar to Intact Human IAS

Jagmohan Singh
Thomas Jefferson University

Satish Rattan
Thomas Jefferson University, Satish.Rattan@jefferson.edu

Let us know how access to this document benefits you

Follow this and additional works at: http://jdc.jefferson.edu/gastro_hepfp

Part of the Gastroenterology Commons, and the Hepatology Commons

Recommended Citation
http://jdc.jefferson.edu/gastro_hepfp/10
Rectoanal incontinence is associated with defective Internal Anal Sphincter (IAS). Current therapies are not satisfactory, raising a potential for the replacement of the dysfunctional IAS with the reconstructs. Present studies were performed to develop human IAS smooth muscle reconstructs with functional and molecular attributes similar to the intact human IAS Smooth muscle (SM).

Methods

SMCs were isolated from Human IAS tissue samples, and cultured in collagen coated tissue culture dishes with DMEM containing 10% fetal bovine serum and 50 mg/ml of sodium ascorbate, around the central Sylgard posts. Method for preparation of Sylgard posts was modified from Hecker et al., Am J Physiol 29005. Collagen I-based IAS reconstructs were made and their physiological properties were compared with intact human IAS.

Results

Figure 1. Typical tracings showing the effects, and data of recombinant responses to A,C. bethanechol, B, ciproteron, D. B. K2 and F, G, PDBu.

Summary & Conclusions

- The studies for first time show that presently prepared IAS reconstructs from human IAS SMCs are functionally and molecularly similar to intact human IAS.
- Data further show that basal tone in these IAS reconstructs is primarily dependent on RhoA/ROCK pathway.