COMPARISON OF MOTOR REACTIVITY OF THE COLONIC MUSCULARIS MUCOSAE ISOLATED FROM HUMAN, GUINEA PIG AND RAT \textit{IN VITRO}

Yuichiro Kamikawa$^1$, Asako Shibukawa$^1$, Kohsuke Uchida$^1$, Atsushi Sakuma$^2$, Kei-ichi Kubota$^2$, Yasuo Ohno$^3$

Departments of $^1$Pharmacology and $^2$Surgery II, Dokkyo University School of Medicine, Mibu, Tochigi 321-0293, Japan, $^3$Division of Pharmacology, National Hygienic Sciences, Setagaya, Tokyo 158-8501, Japan


We have compared the reactivity to spasmogens of longitudinal muscularis mucosae isolated from the human, guinea pig and rat colon \textit{in vitro}. The muscularis mucosae isolated from the human distal colon responded with a sustained contractions to carbachol (10 nM – 30 \mu M), in a concentration-dependent manner, and the maximum contraction was comparable to that with high potassium concentration (100 mM). Among several spasmogens, neurokinin A was the most potent with the following order of potency: carbachol, prostaglandin F$_{2\alpha}$ and acetylcholine. Histamine, 5-hydroxytryptamine and bradykinin did not produce a recognizable contraction of this tissue. The muscularis mucosae from the guinea pig distal colon was very sensitive to neurokinin A and bradykinin, less to carbachol and acetylcholine, and not at all sensitive to histamine, 5-hydroxytryptamine and prostaglandin F$_{2\alpha}$. It is concluded that the colonic muscularis mucosae respond to pharmacological agents in a species-different manner.

\textbf{Key words:} muscularis mucosae, human colon, contraction, spasmogen, guinea pig colon, rat colon

# correspondence; e-mail: kamikawa@dokkyomed.ac.jp