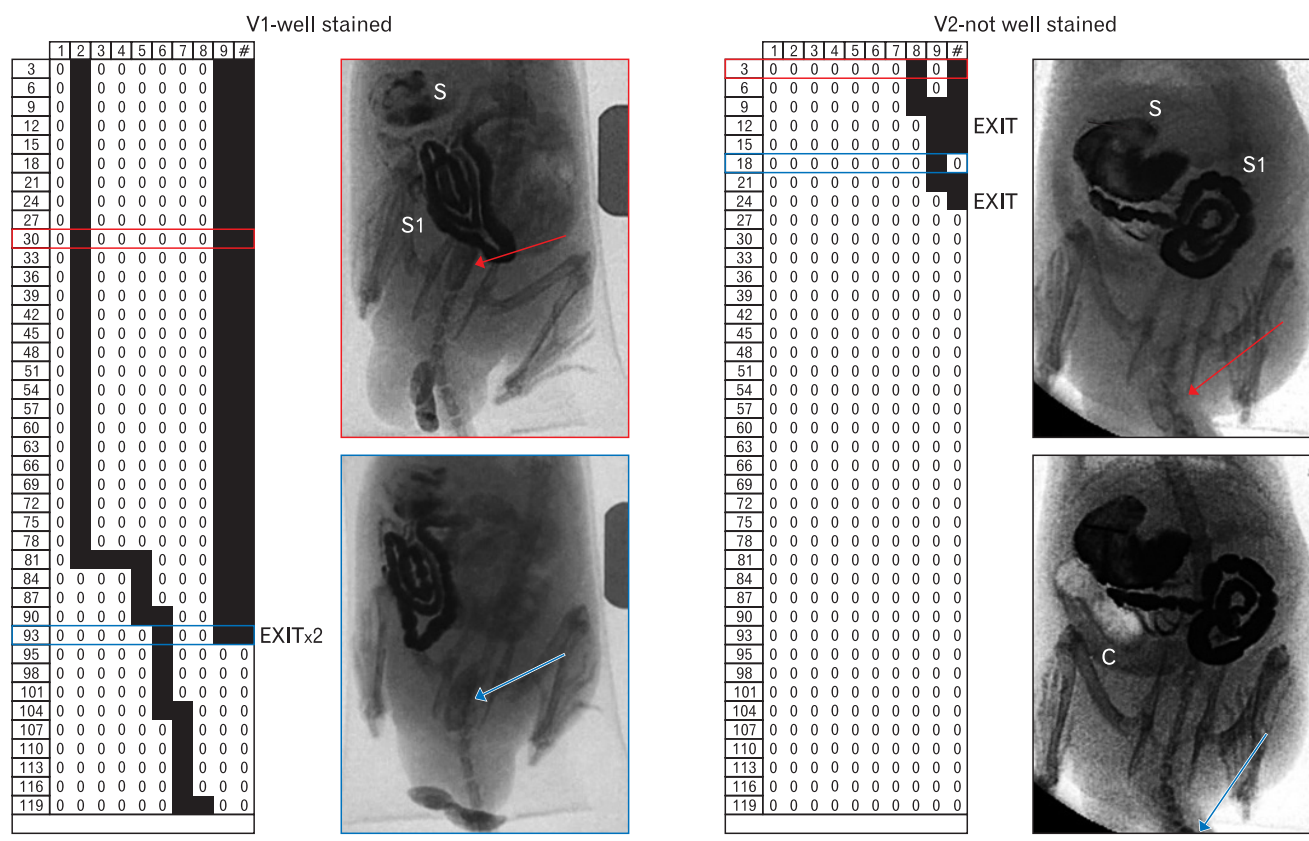
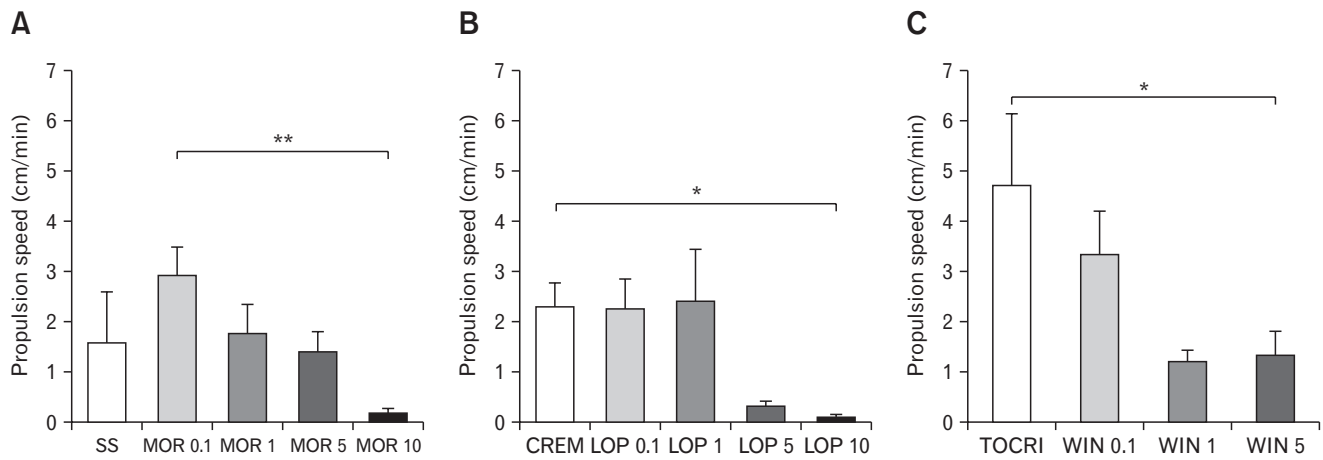




Supplementary Figure 1. Representative spatio-temporal maps (STM) built from fluoroscopic recordings. Rats were gavaged 2 loads of barium contrast: the first one, 20-22 hours before recording, so that fecal pellets could be seen faintly stained at the time of recording; the second one, 1.5 hours before recording, so that the stomach and the small intestine were stained but the cecum was not reached by this load. Fluoroscopic recordings were 120 seconds long. In this study we only analyzed fecal pellet movement within the colon. For this, STM were built in Excel after transforming the fluoroscopic recordings in series of images at 1 frame per second. See main text and legend for Figure 2 for details on STM construction and analysis. Two representative examples are shown corresponding to videos V1 (left) and V2 (right), respectively. In each example, the STM and 2 frames are shown. Arrows indicate the position of one fecal pellet in each frame. V1 corresponds to a rat treated with morphine. V2 corresponds to a rat treated with loperamide. Three relatively well-stained fecal pellets could be followed in V1, whereas only 2 very faintly stained fecal pellets were present in V2. S, stomach; SI, small intestine; C, cecum. Scale bar = 4 cm.

Supplementary Video 1. This video corresponds to a rat treated with morphine. Three relatively well-stained fecal pellets could be followed. See main text and legend for Supplementary Figure 1 for methodological details on fluoroscopy recordings.

Supplementary Video 2. This video corresponds to a rat treated with loperamide. In this case, only 2 very faintly stained fecal pellets could be followed. See main text and legend for Supplementary Figure 1 for methodological details on fluoroscopy recordings.



Supplementary Figure 2. Propulsion speed calculated from the spatio-temporal maps STM (PS'). (A-C) Bar graphs for (A) morphine (MOR), (B) loperamide (LOP), and (C) WIN 55,212-2 (WIN). Results are shown as the mean $\pm$ SEM. * $P < 0.05$, ** $P < 0.01$ (one-way ANOVA followed by post-hoc Bonferroni multiple comparison test). SS, animals received saline (NaCl 0.9% in distilled water, at 1 mL/kg) intraperitoneally (ip); MOR, animals received morphine at 0.1, 1, 5 or 10 mg/kg (ip); CREM, animals received Cremophor 20% in saline, at 1 mL/kg (ip); LOP, animals received loperamide at 0.1, 1, 5 or 10 mg/kg (ip); TOCRI, animals received Tocrisolve 7% in saline, at 1 mL/kg (ip); WIN, animals received WIN at 0.1, 1 or 5 mg/kg (ip).