

The ileocaecal junction is believed to act as an anti-reflux barrier for colonic content into the terminal ileum. The ileocaecal junction including the valve shows characteristic features in the distribution patterns of ICC subtypes along the

proximal to the distal area. The dense distribution of ICC in this area indicates the active involvement of ICC in the movement of the junctional area.

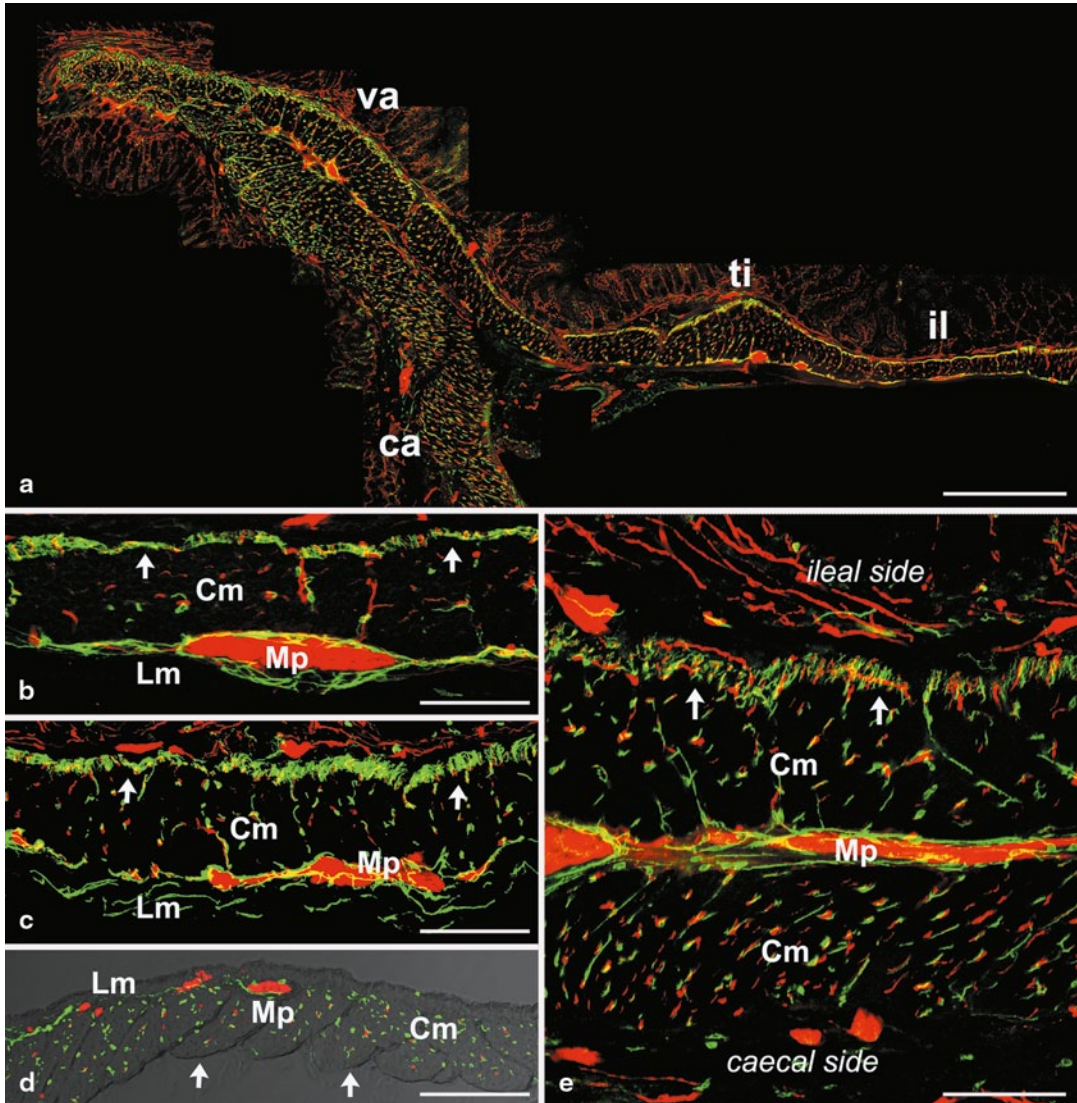


Fig. 7.1 Longitudinal sections of the guinea-pig ileocaecal junction showing ICC and nerves. **a** Overview of distribution of ICC and nerves in the ileocaecal junction. The ileocaecal junction as a dense distribution of ICC closely associated with the nerves. The terminal ileum immediately adjacent to the valve contains a thickened circular muscle layer (*il* ileum, *ti* terminal ileum, *va* valve, *ca* caecum). Bar 1 mm. (Figures 7.1, 7.2: Reproduced from Miyamoto-Kikuta et al. [79] with permission of the publisher). **b** Higher magnification of the ileum. ICC are found in the deep muscular plexus (arrows), around the myenteric plexus (*Mp*) and sparsely within the circular muscle layer (*Cm*). However, almost no ICC can be found within the longitudinal muscle layer (*Lm*). Bar 150 μ m. **c** Higher magnification of the terminal ileum. Dense distributions of ICC are observed throughout the circular (*Cm*) and longitudinal (*Lm*) muscle layers

and at the deep muscular (arrows) and the myenteric (*Mp*) plexus. Bar 150 μ m. **d** Higher magnification of the caecum. The image obtained by immunohistochemistry has been merged with an image observed with Nomarski optics to make clear the contour of the specimen. ICC are observed throughout the circular (*Cm*) and longitudinal (*Lm*) muscle layers. Only a few ICC-MP can be detected around the myenteric plexus (*Mp*). ICC are not densely distributed near the submucosal border of the circular muscle layer (arrows), since deep muscular and submuscular plexus are both absent (different from ileum or colon). Bar 150 μ m. **e** Higher magnification of the ileocaecal valve. ICC-MP are observed around the myenteric plexus (*Mp*) and ICC-CM are densely distributed within both the ileal and caecal sides of the circular muscle layers. ICC-DMP are only observed in the ileal side (arrows), but not in the caecal side. Bar 150 μ m.

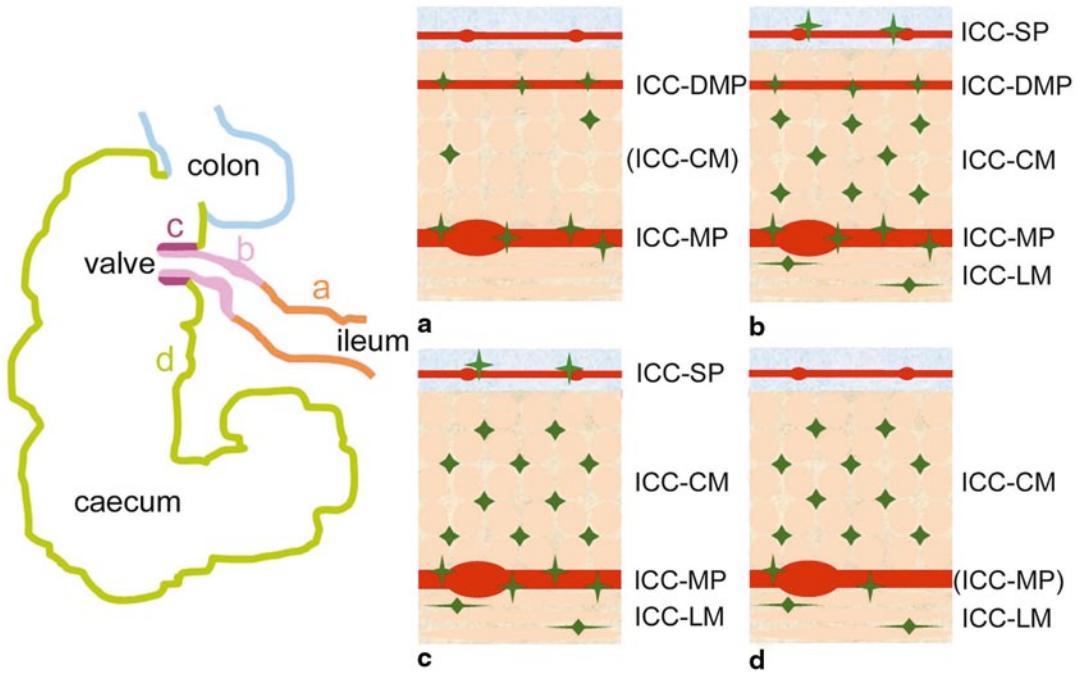


Fig. 7.2 Representation of the various distribution patterns of ICC (green) in the guinea-pig ileocaecal junction. *Left* Overview of the relevant anatomical region a (*a-d* indicated by side panels **a-d** on Right). **a** The main part of the ileum contains ICC-MP around the myenteric plexus, ICC-DMP and a few ICC-CM within the circular muscle layer but no ICC-LM within the longitudinal muscle layer. **b** Both the terminal ileum and the ileal side of the ileocaecal valve contain many ICC-CM and ICC-LM, in addition to ICC-DMP and ICC-MP. ICC-SP are

also observed around the submucosal plexus. **c** The caecal side of the valve contains ICC-MP, ICC-CM and ICC-LM but no ICC-DMP. ICC-SP are also observed around the submucosal plexus. **d** The caecum contains many ICC-CM and ICC-LM but only a few ICC-MP. ICC are not observed in the vicinity of the submucosal border of the circular muscle layer because of the lack of both deep muscular and submuscular plexus (unlike the *ileum* or *colon*).