

## High incidence of inflammatory bowel disease with improved hygiene and failure to get human-like IBD in laboratory animals

Xiaofa Qin

Xiaofa Qin, Department of Surgery, UMDNJ-New Jersey Medical School, Newark, New Jersey 07103, United States  
Correspondence to: Xiaofa Qin, MD, PhD, Department of Surgery, UMDNJ-New Jersey Medical School, 185 South Orange Avenue, Newark, NJ 07103, United States. qinxi@umdnj.edu  
Telephone: +1-973-9722896 Fax: +1-973-9726803  
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### TO THE EDITOR

Inflammatory bowel disease (IBD) has emerged and dramatically increased in the last century with its cause remaining largely unknown<sup>[1,2]</sup>. Extensive studies have been conducted, and many of them involved animal experiments<sup>[3,4]</sup>. To date, an animal model that exactly replicates human IBD is still lacking<sup>[3,4]</sup>. As a result, gut damage is usually induced in animals by chemicals or observed in transgenic or knockout animals that have greatly enhanced susceptibility<sup>[3,4]</sup>. Does IBD only occur in humans, but not animals? This seems not the case. For instance, IBD is also a common disease of the digestive tract in pet dogs and cats<sup>[5,6]</sup>.

Why human-like IBD could not be induced in laboratory animals? It is well known that the incidence of IBD is high in places with improved hygiene<sup>[1,2]</sup>. This was demonstrated by the high incidence of IBD in the developed countries, in people with high social, economical, educational and occupational status, and in cold regions (north-

south gradient)<sup>[1,2]</sup>. Even in humans, such a big difference in IBD exists between those with poor and good hygiene condition<sup>[1,2]</sup>. The difficulty to induce IBD in laboratory animals, is not surprising considering the fact that many (rodents, rabbits, dogs, and even non-human primates) have the habit of coprophagia (eating feces)<sup>[7]</sup>. Currently, we have learned the importance of commensal gut bacteria in the genesis and development of IBD<sup>[3,8]</sup>. However, it seems that IBD would not occur with either too little or too much gut bacteria. The high incidence of IBD in pet cats and dogs may probably attribute to the extra care and cleanliness they have got. To mimic human IBD, extra-measures probably should be taken to reduce bacteria exposure in laboratory animals to emulate humans with high hygiene conditions.

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