

## Foreword

# What Do Eosinophils Do in the Gastrointestinal Mucosa?



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*Consulting Editor*

Low levels of eosinophils reside in the lower gastrointestinal (GI) mucosa. The physiologic relevance of this gut homing of eosinophils remains a mystery. The gut homing plays an important role in educating T cells for a specialized and well-tempered immune response to a multitude of food and microbial antigens that are present in the GI tract. Whether eosinophils undergo a similar training is unknown. Eosinophils clearly have the capacity to work as a team player with T cells in a variety of immunologic conditions. Eosinophils have been shown to selectively produce Th1 or Th2 cytokines, depending upon the prevailing immune response in the milieu. The role of eosinophils in defense against helminth infection is well known. Recent studies have demonstrated that eosinophils are involved in the defense against viruses and bacteria. Eosinophils are rich in RNAses and are therefore specially suited to fight RNA viruses. Eosinophils release microtraps of mitochondrial DNA when they encounter bacteria. The mitochondrial DNA has direct antibacterial effects. Thus, eosinophils possess a variety of tools and ammunition to defend the host and also to aid the other cells of the immune system. Why and when this host defense evolves into a host disease remains a daunting challenge.

Similar to allergic diseases, the incidence of eosinophilic disorders of the GI tract is on the rise. Is it all related to increased allergic sensitivity? What is the connection between food allergy and eosinophilic esophagitis? Why the esophagus, since most of the food absorption takes place in other parts of the GI tract? What is the relationship between respiratory allergy and eosinophilic esophagitis? To get answers to some of these questions, we have invited an allergist and a gastroenterologist to be coeditors for this issue. Drs. Fred Atkins and Glen Furuta are leaders in their respective fields.

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They have solicited an outstanding series of articles that address the basic and clinical science of eosinophilic gastrointestinal diseases. This is a timely and very important topic for allergy-immunology specialists and gastroenterologists.

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