Letter to the Editor
Humoral Immunity against *Bordetella pertussis*: Antibodies or B Cells?

Kirimanjeswara et al. (5) studied the role of B cells and antibodies in immunity to *Bordetella* by using murine infection models for *Bordetella bronchiseptica* and the human pathogens *B. pertussis* and *B. parapertussis*. They showed that although B cells are required for efficient clearance of all three *Bordetella* species, intraperitoneal injection of murine immune sera results in clearance of *B. bronchiseptica*, whereas the human pathogens persist. From these data and results of previously published studies which failed to show opsonic activity of human immune sera in vitro (7), they conclude that *Bordetella* species that are pathogenic for humans may have acquired the capacity to evade the human humoral immune response (5). The study by Kirimanjeswara and colleagues is a valuable contribution to the field. However, an alternative explanation for their results should not remain unmentioned.

Recently published studies have clearly shown that human immune sera efficiently induce leukocyte effector functions towards *B. pertussis* (6). *Bordetella*-specific immunoglobulin G (IgG) and IgA were shown to be capable of inducing phagocytosis, respiratory burst, and bacterial killing (2, 6). It was furthermore shown that *B. pertussis* is less efficiently cleared from mice deficient for IgG receptors (FcγR) (3, 4), which suggests that IgG is also crucial for B. per


Maria Eugenia Rodriguez*
CINDEFI
School of Science
National University of La Plata
La Plata, Argentina

W.-Ludo van der Pol
Departments of Immunology and Neurology
University Medical Center
Heidelberglaan 100
3584CX Utrecht, The Netherlands

*Phone: 54 221 4833794
Fax: 54 221 4833794
E-mail: mer@quimica.unlp.edu.ar

Authors’ Reply

We are in agreement with Drs. Rodriguez and van der Pol that antibodies are important in the clearance of *B. pertussis*, as demonstrated in our paper and previously by multiple groups. Our discussion focused on the observation that adoptively transferred antibodies clear *B. bronchiseptica*, but not *B. pertussis*, within 3 days, and we offer differential antibody recognition as one possible explanation. It is well-established that adoptively transferred antibodies require more than 1 week to clear *B. pertussis* from naive mice, and the contribution of different antigens is a topic of investigation in multiple laboratories.

Girish S. Kirimanjeswara
Paul B. Mann
Eric T. Harvill*
Department of Veterinary Science
The Pennsylvania State University
115 Holden Building
University Park, PA 16802

*Phone: (814) 863-8522
Fax: (814) 863-6140
E-mail: eth10@psu.edu

REFERENCES


