

Preface

It is more than 125 years since Louis Pasteur identified as the causative agent of “choléra des poules” the bacterium that now bears his name. Since that time, *Pasteurella multocida* has been recognized as the causative agent of a wide range of infections in a wide range of animal species as well as in humans. Indeed, the species name *multocida* could be literally translated as “multi-killer”. The term pasteurellosis is now widely applied to describe infections in mammals and birds caused by *P. multocida*. It is therefore surprising that a detailed knowledge of the cellular and molecular basis for pathogenesis in pasteurellosis lags behind what has been elucidated for many other bacterial species. In particular, the molecular basis for host predilection remains completely unknown. For example, why does a B:2 strain kill cattle, buffaloes (or mice) at a very low dose, yet seems to have no effect when injected into chickens, even at very high doses? One of the reasons for this dearth of information may well be that the construction of defined targeted mutants, the standard trade tool of molecular bacteriology, has only become routinely available in the last decade or so. Nevertheless, the development of such tools and the availability of genome sequences in recent years have facilitated significant advances in the understanding of the biology and pathogenesis of this enigmatic pathogen. A significant exception to this lack of knowledge is the mode of action of *Pasteurella multocida* toxin (PMT), a key virulence factor specifically in atrophic rhinitis. The mechanisms involved in the interaction of PMT with host cells and target molecules are now understood in exquisite detail.

This volume brings together contributions from experts in the field of *Pasteurella* research. It covers areas such as comparative genomics, pathogenic mechanisms, bacterial proteomics, as well as a detailed description and analysis of PMT and its interaction with host tissues, cells, immune system, and signaling pathways. Each review article is intended to provide a stand-alone treatise. There is, therefore, some unavoidable overlap between the various chapters.

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