

## Preface

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POLISH EXPERIENCES IN BASIC AND CLINICAL STUDIES  
RELATED TO THE NOBEL PRIZE–AWARDED DISCOVERY  
OF *H. PYLORI* BY B.J. MARSHALL AND R.J. WARREN.

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The major discoveries in experimental and clinical gastrology during previous century included the recognition by I. P. Pavlov of important role of neuro-reflex stimulation of gastric HCl secretion, awarded in 1904 first Nobel prize in gastrology, finding by E. Edkins of hormone gastrin in 1906, by L. Popielski of histamine as gastric secretagogue in 1916 and by J. W. Black, of histamine-H<sub>2</sub> receptors and their antagonists in 1972 awarded second Nobel prize in gastrology. The most spectacular discovery that represented a real breakthrough in gastric pathophysiology was the finding of curved bacteria in the stomach by Australian researches, B. J. Marshall and R. J. Warren, that was awarded third Nobel prize in gastrology because it provided insight in understanding of the mechanism of gastritis and peptic ulcer and successful management, of peptic ulcer by simple eradication of the bacteria.

This issue of the Journal of Physiology and Pharmacology is dedicated to our Polish basic and clinical investigators who carried out the research related to the spiral bacteria discovered over a century ago by W. Jaworski, professor our *Alma Mater Jagiellonica*. This special supplement includes 14 reviews or original papers describing recent studies on *H. pylori*-involvement in various gastric and extragastric pathologies and its clinical consequences prepared by Polish researchers up to the present time. Following expert review of microbiology of the *H. pylori* by K. Dzierżanowska-Fangrat *et al*, who pointed out an increasing antibiotic resistance of the bacteria, M. Szczepanik, leading immunologist, updated the interplay between the bacteria and both innate and adaptive immune host responses. S. J. Konturek *et al*. described the mechanisms of induction by *H.*

*pylori* infection of gastritis and peptic ulcer formation, while P. C. Konturek *et al.* emphasized the crucial role of this *bacterium* in pathogenesis of gastric cancer, proposing global *H. pylori* eradication as the only reasonable way of reducing high incidence of gastric cancer. T. Brzozowski and his associates discussed the problem of the interaction of *H. pylori* and non steroidal anti-inflammatory drugs (NSAIDS) on gastric mucosa in patients and animals without and with peptic ulcer. It appears that under certain conditions, *H. pylori* infection may antagonize the aspirin induced delay in ulcer healing due to the inhibition of gastric acid secretion by endogenous prostaglandin E<sub>2</sub> derived from expression of COX-2 and overexpression of growth factors such as TGF $\alpha$  and VEGF in the infected gastric mucosa. Regarding the extragastric effects of *H. pylori*, P. J. Thor and U. Blaut attempted to elucidate the role of *H. pylori* in the pathogenesis of gastroesophageal reflux disease (GERD) suggesting the implication of ghrelin and impaired vagal control in this disorder. M. Gonciarz *et al.* who reviewed the possible implication of the *Helicobacter* bacteria in liver diseases, found no evidence for such relationship. Kowalski and co-workers attempted to determine the relationship between the gastric *H. pylori* infection and coronary artery disease (CAD), providing strong evidence for the involvement of this infection in the progression of CAD due to local inflammatory process promoted by bacteria-induced various proinflammatory cytokines and acute phase proteins. Loster *et al.* studied the relation between the presence of *H. pylori* in oral cavity and in the stomach, showing that *H. pylori* is present in oral cavity only transiently in majority of patients but genotypically these oral bacteria are completely different from those present in the gastric mucosa. Practical aspects of determination of the prevalence of *H. pylori* infection in children under age 4 years using modified test meal containing <sup>13</sup>C-urea is presented by K. Przybyszewska *et al.* showing about 18% infection rate in children unrelated to the gender or sex. In adult peptic ulcer patients infected with *H. pylori*, the effectiveness of the routine treatments outlined by J. Dzieniszewski and J. Jarosz, was evaluated by W. Ziemniak, who found high level of secondary resistance to clarithromycin and metronidazole and observed that supplementation with probiotics (Lacidofil) significantly increased the efficacy of eradication therapy by antibiotics and proton pump inhibitors.

In summary, this supplemental issue of Journal of Physiology and Pharmacology, prepared by basic and clinical investigators in Poland, provides the insight in the depth concerning the progress in the field of gastric pathophysiology, microbiology and pharmacology related to *H. pylori* infection.