

Lower respiratory infections are the third leading cause of deaths worldwide (1). A specific entity of acute lung injury (ALI) related to infection and inflammation, is ischemia-reperfusion injury which is responsible for complications or deaths due to extensive thoracic surgery, hemorrhagic shock, acute respiratory distress syndrome (ARDS) or pulmonary embolism (2). Within many departments within the Antwerp University, ALI plays a primary role in research. The doctoral thesis of Dr. Jan Gielis led to a growing insight in the detection and role of reactive oxygen species (ROS) during lung ischemia-reperfusion injury (LIRI) (3). From his experience we present a review (J Gielis *et al.*) on the role of reactive oxygen and nitrogen species during LIRI from a surgical point of view. The pathophysiological background of free radical generation, the surgical procedures that lead to LIRI, and the possible therapeutic strategies will be discussed to give an extensive overview on the subject.

The dipeptidyl peptidase (DPP) family plays important roles within different physiological and pathophysiological processes. For example, their role in cancer, immunology, glucose-homeostasis, and inflammatory processes has been demonstrated (4). Within the Department of Medical Biochemistry, the laboratory of prof. I De Meester and prof. A Lambeir has a long history of research in DPP (5,6). However, the precise role of DPP in lung disease is poorly understood (7). To increase the knowledge on DPP in ALI our departments joined forces with the departments of prof. D Adriaensen and S Kumar-Singh [Laboratory of Cell Biology & Histology (CBH)]. Current knowledge and research of these four departments focused on this specific topic from different perspectives and this is also represented in the articles in this special ATM edition.

G Vliegen *et al.* (Department of Medical Biochemistry) provide more insight in the expression of DPP enzymes in lung disease. This review shows the current, often conflicting data, regarding protein expression and activity during disease. The idea that DPP play an important role in LIRI is further discussed in the review of P Beckers *et al.* With potential targets of DPP4 inhibition regarding ROS formation the formerly mentioned papers are linked and we provide an insight in the future potential of this research domain.

As ischemia-reperfusion injury is only one side of the spectrum of ALI, K Bielen *et al.* present us with a review on animal pneumonia models. Choices in animal models are as diverse as the disease itself. This research in fundamental mechanisms involved in bacterial pneumonia provides the basics to choose the correct model for a specific research purpose.

We would like to thank the editorial board of *ATM* for the opportunity to present this special edition on ALI. We are proud to present these four articles that provide insights in the research of ALI from four very different perspectives and hope they will be useful for researchers and clinicians interested in this fascinating research topic.

## References

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doi: 10.21037/atm.2017.03.67

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

View this article at: <http://dx.doi.org/10.21037/atm.2017.03.67>

**Cite this article as:** Beckers PA, Van Schil PE. Preface. *Ann Transl Med* 2017;5(6):128. doi: 10.21037/atm.2017.03.67