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### Programme:

Saturday, Feb. 12, 2011  
Time: 11:45 – 12:15

### Speaker:

Prof. Frank Rümmele, MD, PhD

### Lecture:

Enteral Nutrition and Immune Functions: Clinical Relevance

## ENTERAL NUTRITION AND IMMUNE FUNCTIONS: CLINICAL RELEVANCE

Immunonutrition is the concept of particular nutrients potentially impacting on immune functions. Information on immunonutrition is now well established in clinical settings and thus easily applied in the care of patients, mainly in the form of enteral nutrition. This can apply to various clinical situations, such as the critically ill patient who is not able to tolerate normal oral alimentation and requires a particular immunomodulatory/anti-inflammatory approach, but also in other clinical situations such as hyperinflammatory states, i.e. Crohn's disease or necrotizing enterocolitis.

The present review will highlight the concept of immunonutrition based on enteral nutrition.

Several animal studies, as well as clinical data, suggest that distinct nutrients have a particular and beneficial effect on intestinal barrier functions, on wound repair and on immune functions either in the form of anti-inflammatory regulators or via the enhancement of

protective immune functions (secretion of IgA). Some of the underlying molecular mechanisms are well understood, such as the effect of single amino acids (glutamine, arginine, N-acetyl cysteine, etc.) on the epithelial barrier, but also T cell functions. More and more in the focus are anti-oxidant vitamins, such as vitamin E, vitamin A and vitamin D which can directly impact on the expression of genes and are intimately involved in the immune processes. In addition, there is recent data indicating that modification of the intestinal microflora via specific immunonutrients might be of a major interest to patients with a disturbed balance of the intestinal flora (dysbiosis), such as was recently shown in inflammatory bowel diseases or in prematures with a high risk of necrotizing enterocolitis.

This presentation and review will highlight the most important recent advances in the understanding of immunonutrition via enteral nutrition and give insight into molecular mechanisms further confirming the concept of immunonutrition.