THE ROLE OF IL-33 IN INFECTION DISEASES

Bocharov A.A.

Division of Microbiology, Virology and Immunology

National University of Pharmacy

Kharkov, Ukraine

Interleukin (IL)-33 is a multifunctional cytokine that belongs to the IL-1 cytokine family and expressed by multiple organs and cell types in humans and mice. IL-33 affects the various cell types that express membrane ST2. Recent studies have showed that IL-33 plays an important role in defense against pathogens. It has been reported that exogenous IL-33 administration profoundly inhibited methicillin-resistant S. aureus colonization and accelerated cutaneous wound repair. IL-33 is also implicated in enhancement of collagen deposition and the expression of extracellular matrix (ECM)-associated genes such as fibronectin and collagen IIIa, which implies a potential effect of IL-33 on matrix synthesis and reepithelialization during the wound repair process. It has been also shown that administration of an ST2-specific blocking antibody to Leishmania major infected BALB/c mice resulted in the development of less severe disease, reduced parasite load and a switch in T cell response polarity to a protective Th1-type response. Following infection with Trichuris muris (a disease in which Th2 cells are host-protective), IL-33 mRNA expression levels were higher in the colon of resistant, but not susceptible, mice. When administered to susceptible mice, IL-33 confers resistance against T. muris infection. The resistance is accompanied by enhanced Th2 type and suppressed Th1 and Th17 type cytokine expression. IL-33 also have a role in defence against viral infection. Treatment with monoclonal ST2-specific antibody reduced lung inflammation and the severity of respiratory syncytial virus infection in mice with Th2-associated immunopathology, showing that inhibition of ST2 has a specific effect on virally induced Th2 responses. It has been also reported that in mice infected with influenza virus, IL-33 treatment

led to significantly reduced inflammation and pathology of the lungs. IL-33, drives Th2 cell polarization during influenza infection, and may be used to counter excessive pathology caused by Th1 cells. Administration of IL-33 improves resolution of disease and reduces the number of TNF-alpha and IFN-gamma-secreting CD4 and CD8 T cells in the airways of influenza-infected animals. This reduction in anti-viral T cell number does not impair viral clearance nor alter the recall response. These results show an important protective role of IL-33 in infections. The wider role of IL-33 in infection diseases remains to be explored.

СОВРЕМЕННЫЕ ТЕНДЕНЦИИ В ИЗУЧЕНИИ ЭТИОПАТОГЕНЕЗА АНТИБИОТИК-АССОЦИИРОВАННОЙ ДИАРЕИ

Верховодова Ю.В.

Кафедра фармакотерапии

Национальный фармацевтический университет,

г. Харьков, Украина

Одной из актуальных проблем фармакотерапии является развитие нежелательных реакций на фоне применения разных фармакологических препаратов, в частности, антибиотиков. Высокая частота использования разнообразных антибактериальных средств, а также нерациональное и порой необоснованное назначение данных препаратов оказывает свой негативный вклад на организм человека в целом. Наиболее частыми неблагоприятными явлениями на фоне проводимой антибактериальной терапии являются аллергические, токсико-аллергические и диспепсические реакции. Кроме того, отдельного внимания заслуживают развитие антибиотик-устойчивых штаммов патогенных микроорганизмов, нарушение микробного баланса и возникновение антибиотик-ассоциированных состояний и осложнений, таких как