

## D013

**Polypyrimidine Tract-Binding Protein Interacts with the 3' Stem-Loop Region of Japanese Encephalitis Virus Negative-Strand RNA**

Seong Man Kum\* and Yong Seok Jeong

*Department of Biology, College of Sciences, Kyung Hee University*

The 3' stem-loop (SL) region of positive- and negative-sense RNA of Japanese encephalitis virus (JEV), like that of other flaviviruses, may function as *cis*-acting signals during RNA replication. In an attempt to identify the specific interaction between JEV 3' SL regions and BHK-21 cellular proteins, we performed gel mobility shift assay and UV-induced cross-linking assay. We identified seven cellular proteins with molecular masses of 110, 87, 67, 45, 38, 34, and 30 kDa that bound to the (+)3' SL RNA, and eight cellular proteins with molecular masses of 138, 110, 87, 67, 55, 52, 38, and 34 kDa that bound to the (-)3' SL RNA. A 55 kDa protein was identified as the polypyrimidine tract-binding protein by immunoprecipitation assay. These data suggest that BHK-21 cellular proteins bind specifically to the 3' SL regions of JEV of both polarities and these cellular proteins may be utilized as components of viral replication complexes.

## D014

**Analysis of Mitochondrial Proteins of Macrophages Infected with *Bacillus anthracis* Sterne Spores**

Gwi-Moon Seo\*, Young Mi Song, Kyong-Wha Jung, Hyung-Jung Kwak, Seong-Joo Kim, and Ji-Chon Kum

*Division of Molecular and Life Sciences, Hanyang University*

Anthrax is an infectious disease caused by toxigenic strains of the gram-positive bacterium *Bacillus anthracis*, which is mainly present in the environment in the form of highly resistant spores. In this study, we performed a proteomic analysis and MALDI-TOF/MS were carried out to identify different expressed mitochondrial proteins on mouse macrophages infected with the spores of *B. anthracis* Sterne. We identified several mitochondrial proteins on mouse macrophages infected with *B. anthracis* spores. The analysis revealed that the ATP5b, 4932439K10Rik proteins are found to down-regulation. The protein such as ATP5b catalyzes ATP synthesis, utilizing an electrochemical gradient of protons across the inner membrane during oxidative phosphorylation. The ATP5b protein assumes the reduction on mouse macrophages by the infection and proliferation of *B. anthracis* Sterne spores. Finally mouse macrophages will be dying from ATP depletion.

## D015

***llaB* is a Gene for the Adaptive Response to Low pH Environment in *Salmonella typhimurium* UK1 and a Crucial Gene for Surviving in the Macrophage**Joung-Wook Yang<sup>1\*</sup>, Young-Ju Lee<sup>1</sup>, Sun-A Cho<sup>2</sup>, Jae-Hak Park<sup>2</sup>, Yang Keum Han<sup>3</sup>, and In Soo Lee<sup>1</sup><sup>1</sup>*Department of Microbiology, Han Nam University,* <sup>2</sup>*Department of Laboratory Animal Medicine, College of Veterinary Medicine Seoul National University,* <sup>3</sup>*Department of Dental Hygiene, Daejeon Health Science College*

The acidification tolerance response of *Salmonella typhimurium* is a complex inducible phenomenon in which exposures to slight or moderate low pH will produce a stress response capable of protecting the organism against more severe acid challenges. We isolated *llaB* that is a gene for acidification tolerance response in low temperature at 25°C. Isolated *llaB::MudJ* strain was showed only acid susceptible at the condition of 25°C. Also *S. typhimurium llaB* was not able to survive in HT-29 cell in invasion assay. Oral dose was determined 10<sup>5</sup> to 10<sup>6</sup> CFU/ml for *llaB* in mice. *llaB::MudJ* strain led to increase of IgG1, IgG2 and IgM titers against wild type *S. typhimurium* UK1 in mice sera, cytokine expressions such as IL-2, IL-4, IL-6, and IL-10 in spleen, and lymphocyte proliferation response to mitogens stimulation. Therefore *llaB* of *S. typhimurium* is a gene for ATR in low temperature environment, and can be used an attenuated live oral vaccine against *Salmonella* infection. Also genes for ATR connected with *Salmonella* virulence.

## D016

**The Growth Inhibition Effect of *Lactobacillus ruminus* SPM0211 Against Vancomycin Intermediate *Staphylococcus aureus* and Vancomycin Resistant *Enterococcus***Moon Seok Song<sup>1\*</sup>, Ji Hee Yun<sup>1</sup>, Joo Yong Cho<sup>1</sup>, Dong Hyun Kim<sup>1</sup>, Kun Sup Park<sup>1</sup>, Myung Jun Chung<sup>2</sup>, Soo Dong Kim<sup>2</sup>, Dae Heoun Baek<sup>2</sup>, Sung Sook Chor<sup>3</sup>, and Nam Joo Ha<sup>1</sup><sup>1</sup>*Department of Pharmacy, Sahmyook University,*<sup>2</sup>*Cellbiotech, Co Ltd,* <sup>3</sup>*Department of Food Science, Sahmyook College*

The intestinal microbiota are important to the host with regard to resistant to bacterial infection and metabolic function. Lactic acid producing bacteria such as *Lactobacillus* play an important physiological role in their matters. We isolate *Lactobacillus ruminus* SPM 0211 that revealed a strong resistance to glycopeptide antibiotics (vancomycin and teicoplanin). Antimicrobial activity of the bacteria against VISA and VRE was measured.

A mixture of the bacterial suspension (10ml) of VISA or VRE and the cultures of 1, 5, and 9 ml *L. ruminus* SPM 0211 that adjusted to a final volume of 10 ml with brain heart infusion (BHI) broth was incubated for 3, 6, and 9h, serially diluted and then plated on BHI agar plates. As numbers of *L. ruminus* SPM 0211 increased, viable cell count of VISA and VRE decreased. The strongest antimicrobial activity of SPM 0211 was observed after the 9 hours incubation at any mixture, almost completely inhibiting the growth of these two bacteria. The result suggests that the freshly isolated *L. ruminus* SPM 0211 may be used as a probiotic that prevent the VRE and VISA, thereby promoting gastrointestinal health.