PERINATAL LISTERIOSIS: THE MOUSE MODEL
S.A. Ermolaeva, K.A. Sobyanin, E.V. Sysolyatina, Ya.M. Chalenko
Gamaleya State Research Center of Epidemiology and Microbiology, Moscow, Russia

The Gram‐positive bacterium Listeria monocytogenes is typical saproonomic pathogen. L. monocytogenes causes listeriosis, a severe disease with multiple manifestations including stillbirths and meningitis of newborns, in humans and a wide range of domestic and wild animals. The invasion factor of the internatal family InIB is involved in crossing the maternal–fetal barrier (Disson et al., 2008). Previously, we compared human and wild animal L. monocytogenes strains and described several naturally occurring InIB variants. We demonstrated that InIB variants differed in the ability to support intragastric infection in mice (Sobyanin et al., 2017). The aim of this work was to compare effects of InIB variants on perinatal infection. The mouse model was used. The InIB variants differing in 10 amino acid substitutions were expressed under the same promoter in the L. monocytogenes strain EGDeInIB. Work with animals was performed with approval of local bioethical committee. Mice were intragastrically infected on the 14th day of pregnancy, euthanized 1 and 3 dpi, bacterial loads were determined by plating. One of two InIB variants provided infection of both placenta and fetuses while another did not. Bacteria carrying InIB variant 14 but not the variant 9 were revealed in placenta 24 and 72 hpi. 65% of placenta and only 20% of fetuses were infected. Fetus infections were correlated with placenta infection. Infection was unequal for different fetuses in the same animal with bacterial loads ranges from individual bacteria to $10^5$ CFU per fetus. Obtained results suggested that some but not all InIB variants might promote perinatal infection upon intragastric infection and that the infection of each placenta happens individually.

RELATIONSHIP BETWEEN MICROORGANISMS IN THE VAGINAL BIOTOPE OF SUBFERTIL WOMEN
A.P. Godovalov, T.I. Karpunina
Acad. E.A. Wagner Perm State Medical University, Perm, Russia

The aim of investigation was to evaluate the features of microecology of the lower genital tract of women with infertility.

A retrospective analysis of microbiological data of the vaginal discharge of 345 subfertil women was carried out. To assess the share of different types of microorganisms in the structure of the microbiota the coefficient of species constancy was used. To quantify the interaction between members of the microbiocosmos, the Jacquard similarity coefficient was used.

The nature of the relationship between the main members of the microbial community in the vaginal biotope of women with infertility should be considered antagonistic. The phenomenon of mutualism was characteristic only between Lactobacillus spp. and Peptostreptococcus spp. Typical E. coli have a significant ecological community with these bacteria, the relationships of their can be characterized as synergistic. Similar ecological synergism was revealed for S. epidermidis and lactobacilli. It was shown that in subfertil women E. coli acquires the function of stabilizing strain and its activity often associated with both a change in the species composition of lactobacilli and their functional characteristics. In a similar situation despite the prevalence of microbial antagonism in the vaginal microbiota, Lactobacillus spp. “admit” the existence of E. coli, Enterobacter spp., S. aureus, S. epidermidis, S. haemolyticus, S. agalactiae, Enterococcus spp. and C. albicans. Under such conditions, the negative influence of commensal microorganisms on lactobacilli is enhanced and its have manifestation by a marked decrease in their numbers and functional activity, as well as a decrease in the sensitivity of the associates to the biocidal factors of lactobacilli when coexisting.