

## SCIENTIFIC DEVELOPMENTS

For veterinary practice, the scientific school of Biyashev K.B. more than 40 drugs have been proposed, which have been tested with high efficiency on the farms of the republic. More than 100 patents have been received for these drugs, and 48 regulatory documents have been developed. To prevent bacterial infections of young farm animals and birds, it is proposed:

- "Method for preventing gastrointestinal diseases in newborn young farm animals", Utility Model Patent No. 4284. dated 04/24/2019.
- "Escherichia coli 39 SN bacterial strain used to obtain a probiotic preparation". Utility Model Patent No. 4145. 04/08/2019.
- "Antakon" preparation for the treatment and prevention of gastrointestinal diseases in newborn young animals and birds", Innovative Patent of the Republic of Kazakhstan No. 29932. 06/15/2015, Bull. • "E.coli 64G bacterial strain used for the production of an effective probiotic preparation against intestinal infections of young farm animals and birds", patent No. 28311, 20.05.2013.
- "Enterocol preparation, method for its production, method for preventing intestinal infections of young farm animals and birds", patent No. 25918, 15.08.2012.
- live vaccine against colibacillosis in pigs. Innovative patent No. 11498 08/12/2009
- bivalent live vaccine against salmonella abortion in mares (Patent "Method for the prevention of salmonella abortion in mares" No. 32327 dated July 31, 2017);
- live vaccine against sheep salmonellosis (Patent "Salmonella abortusovis - 37 bacterial strain used for the production of live vaccine against sheep salmonellosis" No. 30434 dated September 22, 2017);
- polyvalent vaccine against bovine salmonellosis (Patent "Salmonella dublin 31 bacterial strain used for the production of live vaccine against bovine salmonellosis" No. 32022, dated March 31, 2017, patent;
- "polyvalent vaccine against animal salmonellosis" No. 32879 dated October 12, 2017;
- live vaccine against salmonellosis of waterfowl. Ministry of Justice of the Republic of Kazakhstan. Innovative patent No. 11490 05/08/2004
- live vaccine against chicken pullorosis, Patent No. 12827, dated 01/08/2004.

Many drugs are currently successfully used to prevent common infectious animal diseases:

- polyvalent vaccine against leptospirosis of farm animals and fur-bearing animals (patent No. 12828, dated May 14, 2002);
- polyvalent vaccine against pasteurellosis of farm animals (patent No. 11490, dated December 28, 2000);
- polyvalent vaccine "Mastivak" against cow mastitis (No. 34152, dated August 20, 2019).

The following have been developed as effective specific treatments for infectious pathologies:

- polyvalent hyperimmune serum against pasteurellosis. Pre-patent No. 14078, dated 04/07/2001.
- polyvalent hyperimmune serum against leptospirosis. Pre-patent No. 14075. from 01/07/2004
- polyvalent hyperimmune serum against cow mastitis. No. 90673 October 24, 2014
- polyvalent serum against colibacillosis, salmonellosis and swine edema disease, No. 11706, dated April 24, 2002;