



Mitochondrial DNA and Y-chromosomal data confirmed that western and eastern edges of the steppe metapopulation belong to contrasting - Western and Eastern Eurasian – gene pools while the main part of metapopulation is of mixed origin. The most impressive result obtained from Y-chromosomal studies is that gene pool of Eurasian steppe population is structured not only by geographical and linguistic factors but mainly reflects the tribal-clan structure of the respective population. We demonstrated this in depth on Altaians, Khakasses, Bashkirs, and Kazakhs, as well as on other steppe populations. Indeed, as far as clans are formed by individuals with claimed shared paternal ancestry, their gene pools should be ideally structured by the Y-chromosome provided that the claimed deep ancestry in most cases corresponds with the biological ancestry. On multiple examples we found that this is indeed the case.

Genome-wide autosomal markers also were applied to the Eurasian steppe populations. Most importantly, their use allows genetically trace and date Turkic expansion from Altai region.

The methods of complete genome analysis not only increases number of used autosomal SNPs compared to genome-wide analysis. Most importantly, the massive resequencing of the Y-chromosome allows to increase phylogenetic and phylogeographic resolution by the order of magnitude. By using this approach we have subdivided the haplogroup C-M217 into dozens subbranches and obtained their frequencies from across the steppe. It allows to clearly trace the medieval Mongolian expansion, as well as earlier population events. Deep phylogenetic and genealogical analysis of haplogroups C and G1 also helped to link some genetic lineages to historical persons which might be their founders and helped to calibrate the Y-chromosomal mutation rate. This rate could be it turn used for genetic dating of demographic expansions and migrations.

#### EFFICIENCY OF SCREENING COLONOSCOPY FOR DIAGNOSIS OF PRECANCEROUS AND CANCEROUS DISEASE OF DIGESTIVE TRACT

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**Introduction.** Colorectal cancer (CRC) is the third most common malignant neoplasm worldwide. According to World Gastroenterology Organization CRC is the second leading cause of cancer deaths among men and women that makes more than 500 000 cases in a year. This type of cancer is difficult to diagnose at an early stage that indicates high demand for introduction of the CRC population screening program. On recommendation WGO “ideal colonoscopy screening” has to be simple and cheap. Though colonoscopy screening program is partially functioning in US the CRC incidence steadily decreases by 3% each year. Nowadays CS is not held for all population of Kazakhstan. The aim of this work is assessment of possibility and efficiency of early endoscopy screening for malignancy of digestive tract.

**Methods.** During the year 2014 only 10419 out of 969139 patients were examined with CS. Selection criteria of patients for CS: presence of risk factors in history; chronic constipation, pressure sores and ulcers; polyps; cancer history: patients, who have previously been colon cancer diagnosed and followed by appropriate treatment; women, who had ovarian, uterus



or breast cancer; family history of inflammatory bowel disease (ulcerative colitis, Crohn's disease); smoking; diet: (high content of red meat in diet and low consumption of fresh fruit, vegetable, poultry and fish); obesity; viruses, (such as strains of human papillomavirus), alcohol consumption, especially in large quantities. Frequency of incidence of complications by holding CS was 1-2 out of 1000 cases.

**Results.** Only 10419 out of 969139 patients were examined with CS, that is 1, 1% of all examined patients. Precancerous disease was verified by 471 patients, that is 0,05% of total quantity of examined patients and 4,5 % of patients, who undergone CS, that demonstrates high specificity and sensitivity of CS in detecting polyps and tumors.

**Conclusions.** Based on the analysis of results colonoscopy screening of population represents an effective and secure way of detection of precancerous and cancerous disease of digestive tract. It provides reduction of incidence of digestive tract diseases and deaths among the population of Kazakhstan.

#### INVESTIGATION OF THERAPEUTIC POTENTIAL OF TARGETED DELIVERY OF CYTOKINES INCLUDED INTO THE AUTOLOGOUS ERYTHROCYTE GHOSTS

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**Background.** Autologous blood cells are most promising targeted containers for drug delivery in terms of immunological susceptibility, safety, ease of preparation and efficacy in clinical practice.

The study of the therapeutic efficacy of autologous blood cells containing cytokines: interleukin-1 $\beta$ , interleukin-2, and antibiotic ceftriaxone on the models with purulent wounds.

**Methods.** As a system for targeted delivery of drugs to the purulent foci autologous erythrocyte ghost have been used. Experiments were performed on albino rats with weight 200.0-220.0 g (n = 30) with purulent wounds.

Rats in the control group were treated with the standard method, including the intra-muscular administration of the antibiotic ceftriaxone (0.01 g twice a day, during 7 days) and topical application of ointment “Levomecol”. In the study groups I and II after surgical treatment of the abscess, autologous erythrocyte ghosts containing a single dose of ceftriaxone and one of these cytokines (IL-1  $\beta$  and IL-2) were injected to the wound edges and bottom. Purulent cavity sutured in layers followed by the imposition of primary sutures on the skin. Postoperative wound edges were treated with autologous erythrocyte ghosts containing a single dose of ceftriaxone and cytokines after 24 and 48 hours after the first administration once a day.

On 1,3,5,7,9 and 12 days after surgery tissue biopsy was performed and wound content underwent bacteriological analysis and smears for Papanicalou staining and further cytology were performed.

**Results.** The traditional method of treatment of purulent wounds in laboratory animals demonstrated the improvement in the form of decrease swelling and reduce local pain in the wound only for 6-7 days however purulent discharge from the wound continued.

In laboratory animals from the study group I and II treatment results by the proposed method showed more early postoperative wound healing. On the 2-3 day marked the disappearance of