**The concentration of some chemokines in blood plasma in healthy donors**

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**Background and aims.** Chemokines belong to the family of cytokines, the main function of which is cell migration control. The study of proinflammatory chemokines can provide useful information in the diagnosis and monitoring of infectious and inflammatory diseases. But it is necessary to know the healthy donors' values of chemokines and understand whether they differ in human populations. The goal of this research was to work compare the concentration of some chemokines in blood plasma in the practically healthy population of St. Petersburg, Russian Federation, and the population of the Republic of Guinea for establishing normative values.

**Materials and methods**. Blood plasma samples were collected from healthy donors. There were 23 samples from living in St. Petersburg donors and 25 samples from donors of the Republic of Guinea. Chemokines concentrations (CXCL9/MIG, CXCL10/IP-10, CXCL11/ITAC, IFNg, MCP3/CCL7, MCP2/CCL8, MIP3a/CCL20) were measured using Luminex xMAP technology. The commercial test systems "Bio-Plex MagPix" (Bio-Rad, USA) based on Luminex xMAP technology (Luminex, USA) was used. Registration and analysis of data was performed on the device MAGРIX Luminex (Luminex,USA). Statistical analyses were performed using the GraphPad software. Between-group differences were evaluated using the Mann - Whitney U-test. p values less than 0.05 were considered as significant.

**Results**. We found no difference between groups in concentration of chemokines CXCL10/IP-10, CXCL11/ITAC. The concentration of CXCL9/MIG in the blood plasma of Guineans was 1.6 times higher than that of the St. Petersburg residents (270.1±89.87 pg/ml vs 173.9±52.96 pg/ml, p<0.001). IFNg level in Guineans blood plasma was 1.5 times higher than in St. Petersburg inhabitations (80.8±18.96 pg/ml vs 55.7±11.12 pg/ml, p<0.0001). Concentrations of MCP3/CCL7 was in 1.4 times in the blood plasma Guineans samples (208.9±42.01 pg/ml vs 152.5±26.49 pg/ml, p<0.0001); MCP2/CCL8 - in 1.2 times (45.1±10.02 pg/ml and 37.6±13.93 pg/ml, p=0.0232). The highest differences of chemokine levels in human blood were found for concentration of MIP3a/CCL20 (32.69±62.01 pg/ml vs 10.74±3.70 pg/ml, p<0.0001). Level of MIP3a/CCL20 in Guineans blood plasma samples was in 3.0 times higher than level of this chemokine in St Petersburg donors. So, these results demonstrated distinct differences between the two populations.

**Conclusion.** We analysed 7 analits by using Bio-Rad kit on the Luminex platform (xMAP technology). The multiplex MagPix assay is rapid and highly versatile. We have determined population-based standards for levels of CXCR3 receptor ligands (CXCL9/MIG, CXCL10/IP-10, CXCL11/ITAC) and IFNg, MCP3/CCL7, MCP2/CCL8, MIP3a/CCL20 in blood plasma from healthy donors of St. Petersburg and the Republic of Guinea. Interpopulation differences were discovered for these chemokines: CXCL9/MIG, IFNg, MCP3/CCL7, MCP2/CCL8, MIP3a/CCL20.