Research on molecular epidemiology of poliomyelitis are conducted in the VCI Unit since 1985. VCI Unit staff was the key investigator of the reemerging Polio outbreaks in Transcaucasus, Central Asia, Moldova, and Ukraine. Polio endemic territories of India, Pakistan and Turkey were defined as the source of Polio importation and pathways of Polio virus transmission were investigated. Laboratory of molecular epidemiology (LME) was established in 1995 and greatly contributed to the Global Polio Eradication Initiative of WHO in European Region as a part of WHO Polio Laboratory Network of WHO. Since 1996 LME collaborates with Institute of poliomyelitis and virus encephalitides (IPVE), being a component of the WHO Polio Regional reference laboratory based at the M.P. Chumakov IPVE, RMA under Memorandum of Understanding signed in 1996.

Scientific Agreement between Belozersky and Chumakov institutes were signed in 2010 European Regional office of World Health Organization, M.P. Chumakov Institute of poliomyelitis and virus encephalitides and A.N. Belozersky Institutes of Physico-Chemical Biology signed Memorandum of Understanding specifying details of their collaboration in 2012.

**Research Results**

Polio outbreak in Tajikistan in 2010 was the first outbreak in European region of WHO since 1996 and the largest outbreak in the World in 2010. Importation from India WTP I caused the outbreak. From Tajikistan WTPI was transmitted to the countries neighboring Tajikistan. Detailed investigation, including whole genome sequencing of Polioviruses isolated in 2010-2011 in the Sub-region. [Manuscript is in preparation for publication]. Genomes of Polio viruses isolated from extremely rare cases of vaccine associated poliomyelitis were characterized with high proportion of them being intertype recombinants. [Lipskaya et al., 1991]. It was shown that derivatives of Sabin polio vaccine strains demonstrate substantial ability to circulate among non-immune and immune groups of population. [Korotkova et al., 2003; Cherkasova et al., 2002; 2003; 2005]. Methods based on the oligonucleotide chips for detection of recombinants among vaccine-derived polioviruses (VDPV) was developed. This method can be used as well to estimate degree of divergence of VDPV from corresponding Sabin vaccine strain. [Cherkasova et al., 2003]. Polio virus genomes of the wild polio strains circulating recently on the territories of the former USSR were characterized. [Lipskaya et al., 1995]. Some general patterns of the wild and vaccine polio strains evolution were described. [Gavrilin et al., 2000; Yakovenko et al., 2006; 2009; Agol 2006; 2006a]. Molecular epidemiology of measles and rubella virus infections was investigated. Source of measles virus importation from endemic territories of the World and the pathways of poliovirus transmission in RF and European region were defined. Change of measles virus genotypes in RF was discovered. [Shulga et al., 2009; Mankertz et al., 2011]. Molecular epidemiological investigation of Hemmoragic fever with renal syndrome was conducted. [Deconenko et al., 1996].