A 32 month follow-up study of blood microvesicle concentration in 12 patients treated with imatinib 
Eva Ogorevc¹, Roman Štukelj², Apolonija Bedina-Zavec³, Vid Šuštar⁴, Veronika Kralj-Iglič² and Rado Janša⁵
¹Faculty of Electrical Engineering, Ljubljana, Slovenia
²Faculty of Health Sciences, University of Ljubljana, Ljubljana, Slovenia
³National Institute of Chemistry, Ljubljana, Slovenia
⁴Faculty of Medicine, University of Ljubljana, Ljubljana, Slovenia
⁵Ljubljana University Medical Centre, Ljubljana, Slovenia

The concentration of microvesicles (MVs) in blood isolates is a potential indicator of clinical status and can be used to monitor the development of the disease. Gastrointestinal stromal tumors (GIST) express a specific tyrosine kinase receptor c-kit (CD117). Imatinib (STI 571,Gleevec; Novartis Pharmaceuticals) specifically inhibits some tyrosine kinases signalling and thereby suppresses proliferation and survival of cancer cells. Imatinib is currently considered standard therapy for GIST. We have monitored the effect of the treatment with imatinib on the blood concentration of MVs in 12 patients after removal of GIST, 2 patients with metastatic GIST and in a healthy control, for 32 months.

In patients with previously removed tumor the concentration of MVs before treatment was increased with respect to the healthy subject. The first week after the initiation of the treatment, the concentration of MVs considerably increased with respect to the healthy subject in all patients, while after the 4th week it on the average decreased to the level of the healthy subject and remained there during the following 128 weeks.

Tumor marker S-CA 19-9 increased with increasing concentration of MVs in blood isolates in imatinib treated patients, which indicates that the marker is most probably located in MVs. We found a positive correlation between the concentration of blood platelets and the concentration of blood MVs, which explains that majority of MVs in blood isolates derives from platelets.