Abstract
Cancer diseases represent second most frequent cause of death after cardiovascular diseases in Europe. Nowadays used medical treatments like chemotherapy and radiotherapy are nonspecific and cause huge side effects. Various systems to deliver therapy directly inside the tumour microenvironment and reduce side effects are under development. Protein nanoparticles seem to be very promising strategy to achieve that goal. Our group in cooperation with CNR in Rome tested nanoparticles based on heavy chain of human ferritine. These constructs, modified to expose the tumor targeting molecule, were able to be specifically internalised by B16F10 melanoma cells in vitro. They also specifically target and localise at the sites of primary melanoma and lung metastases of different size in mouse in vivo model. These nanoparticles can carry either therapeutic or diagnostic molecules. Thus they represent a suitable candidate for further studies for potential use in clinical praxis as a diagnostic and/or therapeutic agents (theranostics).