Tumor cells often inactivate the mitochondrial apoptosis pathway in order to gain therapy resistance. The aim of project 3c is to identify the molecular apoptotic mechanisms of 27 selected natural compound candidates. In order to identify compounds that target novel apoptosis signaling pathways, human Jurkat T cells with a disabled mitochondrial cytochrome c/Apaf1 apoptosis pathway are employed. So far, a number of promising natural compounds, such as viriditoxin have been identified. Viriditoxin induces apoptosis in different tumor cell lines, with rapid kinetics and low EC50 values and displays no cytotoxic effect on hematopoietic stem cells. Besides the characterization of the molecular mechanism of viriditoxin, new semisynthetic compounds will be further investigated via a multi-staged screening approach. As a long-term objective, it is aimed to identify the respective targets and to determine the molecular mechanisms of the natural compound viriditoxin and of semisynthetic meriolins.