

The collaborative research project GENINCA focuses on novel methods of diagnosis and treatment for cancer of the colon and liver. The Institute for Human Genetics (Medical University of Graz) co-ordinates an international consortium of 11 partners, receiving 3 M€ within the 7th framework programme (FP7). Lead by Prof. Speicher researchers from 8 academic institutions and 3 small and medium enterprises (SME) from Austria, France, Germany, Italy and the UK will investigate the „GENomic INstability and genomic alterations in precancerous lesions and/or CAncer“ (short: GENINCA).

Human tissue and organs are constantly renewed with fresh cells derived from stem cells, specific cells with unlimited capacity to proliferate. While the proliferation of stem cells in healthy conditions is restricted and subject to extensive control, similar cells with a defective proliferation control are presumed to sustain the growth of tumors. These cells, also known as tumor stem cells, appear to be rare; however, they frequently escape treatment. This is thought to contribute to the failure of current cancer treatments, but to date there is little known about these cells. For the development of new treatments specifically targeting these highly malignant cells it is crucial to know which alterations they bear from the very first stages of their malignancy.

GENINCA will use highly sophisticated methods to characterize specific tissue samples undergoing the very early steps in the erosion of healthy cells. The tumor stem cells present within these lesions will be subjected to comprehensive molecular analysis. This will lead to a better understanding of their nascency and their characteristics which in turn will enable the development of new therapies aimed at specifically eradicating these cells and therefore to treating cancer more effectively.