RAL GTPases mediate multiple myeloma cell survival and are activated independently of oncogenic RAS

Marcel Seibold, Thorsten Stühmer, Nadine Kremer, Anja Mottok, Claus-Jürgen Scholz, Andreas Schlosser, Ellen Leich, Ulrike Holzgrabe, Daniela Brünnert, Santiago Barrio, K. Martin Kortüm, Antonio G. Solimando, Manik Chatterjee, Hermann Einsele, Andreas Rosenwald, Ralf C. Bargou, and Torsten Steinbrunn

Disclosures: none

Contributions: MS, TStu and TSte designed and performed research, analyzed and interpreted data and wrote the manuscript; NK, AM, CJS, EL, UH and AS performed research and analyzed data; DB, SB and AGS analyzed data; KMK and HE provided patient samples; IS and UH synthesized chemical compounds; MC, AR and RCB designed research, interpreted data, and edited the manuscript; all authors revised the manuscript and approved submission.