Bevacizumab is a monoclonal antibody to VEGF that inhibits angiogenesis. TRC105 potentiates bevacizumab activity in pre-clinical models of human NSCLC. The use of TRC105 with bevacizumab and paclitaxel/carboplatin may more effectively inhibit angiogenesis and improve clinical efficacy over that seen with bevacizumab alone. Preclinical data demonstrate endoglin is an escape pathway that promotes VEGF resistance (Bockhorn 2003, Davis 2004, Anderberg 2013, Liu 2014) and was well tolerated. Bevacizumab 15 mg/kg, paclitaxel 200 mg/m² and carboplatin 6 AUC q3wk IV produced partial responses by RECIST in bevacizumab-refractory patients, occurred in 3 of 8 (37%) patients and bevacizumab was initiated in 7 of 8 patients. Most common adverse events unrelated to TRC105 were alopecia, telangiectasia, fatigue, and headache. The combination of TRC105 and paclitaxel, carboplatin and bevacizumab demonstrated encouraging preliminary signs of activity including a partial response rate of 37% by RECIST. The combination of TRC105 and paclitaxel, carboplatin and bevacizumab demonstrated encouraging preliminary signs of activity including a partial response rate of 37% by RECIST. The combination of TRC105 and paclitaxel, carboplatin and bevacizumab demonstrated encouraging preliminary signs of activity including a partial response rate of 37% by RECIST. Mucocutaneous telangiectasia and is associated with improved cancer survival (Duarte 2014).