Peritoneal carcinomatosis is the most common secondary cancerous disease to affect the peritoneal cavity, implying poor prognosis. Standard therapy consists of cytoreductive surgery in combination with adjuvant chemotherapy. To improve the therapeutic outcome, targeted therapy using radionuclides such as ?-, ?, and Auger emitters coupled to antibodies seems a promising option. Although ?-emitters have shown promising results in preclinical and clinical Phase I/II studies, these results could not be confirmed in Phase III studies. Because ?-particles very efficiently eradicate small tumor cell nodules, they represent a promising option for treatment of micrometastatic disease characteristic of peritoneal carcinomatosis. ?-emitter radioimmunoconjugates have been successfully used in various experimental studies and in a first clinical Phase I study in human ovarian cancer. Although confirmation of these results in clinical trials is missing and problems still exist concerning worldwide availability, ?-emitters could contribute to optimizing strategies for therapy of peritoneal carcinomatosis.