2. Protocol Synopsis: 1 page maximum

Note: This synopsis fits best a prospective clinical trial. Adapt as needed for other type of studies.

PROJECT TITLE	First in men Phase I clinical trial assessing a novel patient specific anti-tumor cell therapy combining irradiated autologous tumor cells and macrocapsules containing allogeneic cells genetically modified to produce the potent adjuvant huGM-CSF: Immunological analysis
BACKGROUND	New anti cancer treatment are critically needed. In preclinical models, subcutaneous immunization with irradiated tumors cells engineered to released GM-CSF induces specific, long lasting and protective anti-tumor immunity in many cancer models: melanoma, prostate, lung, glioblastoma, kidney, breast, sarcoma, lymphoma, leukemia, squamous cell, colon. In the past 10 years in collaboration with P. Aebischer's lab at the EPFL and the start-up MaxiVAX, we have developed a novel immunization strategy suitable for clinical application. The subcutaneaous co-implantation of irradiated tumor cells and macrocapsule releasing locally, at the vaccine site, the potent adjuvant GM-CSF circumvent most of the obstacles observed in previous clinical trials. Irradiated autologous cancer cells offer the maximal exposure of antigenic tumor material while the loaded capsule allows a predictable and sustained release of GM-CSF for up to 7 days. A First in men Phase I clinical trial is planned in the coming months at the HUG. The protocol has already been submitted and analyzed by the ethic committee (N°11-178). A positive answer is pending upon additional information regarding the data safety monitoring board.
PRIMARY OBJECTIVE(S)	While the first in men Phase I clinical trial has safety, feasibility as its primary endpoints, the current application is focusing on the evaluation of the immune responses induced by the experimental treatment, a key parameter in a clinical setting were meaningful objective response are unlikely in patients with very advanced, refractory cancer.
INCLUSION/EXCLUSION CRITERIA	As specified in the clinical protocol submitted to the ethic committee. All patients will have an incurable cancer, refractory to currently available and recognized treatment. Main exclusion criteria are immunosuppression (HIV or drug related), inability to harvest tumor cells, untreated brain metastasis, anticoagulation with coumarines
RANDOMISATION / STUDY GROUPS / SAMPLE SIZE	This first Phase I clinical trial will recruit 15 cancer patients with progressive tumors despite treatments with approved therapies. Based on the preclinical data and the patient specific treatment no restriction applies in tumor type except hematological malignancies.
INTERVENTION	Therapeutic intervention with a novel patient specific anti-tumor cell-therapy. The planned treatment is made of repeated subcuteanous implantation of a 4x106 irradiated autologous tumors cells in addition to two macrocapsules containing allogeneic cells producing high and sustained quantity of GM-CSF. The capsules are removed after one week. Implantation will be repeated 4 time on a weekly basis then 2 additional immunization 14 days apart. In addition to the planned safety feasibility analysis, immune monitoring will be performed before, during and after the cell therapy including cell mediated and antibody mediated immune responses.
FOLLOW-UP	Patients will be followed for at least 6 months and when appropriate additional immunization is available within the clinical trial.
ENDPOINT(S)	Primary endpoints of the study are safety and feasibility. Secondary endpoints are monitoring of immune response and classical response rate according to RECIST criteria. An additional endpoint is to evaluate the collaborative effort to launch a novel therapy implying several partners such as Cell Therapy Centre, Oncology Division, Surgery Dpt, Unité de recherche clinique DFDL and the CRC.
STATISTICAL ANALYSIS	No comparative analysis as there is Only group of 15 patient in this Phase I clinical trial