PHYSICIAN SCIENTIST
LA MEDICINA INCONTRA LA RICERCA
promosso da: AIRC Fondazione CARIPLO | con il supporto di: SIMM Università degli Studi di Milano

Principal Investigator	Ruggeri Loredana
Hosting institution	Azienda Ospedaliera di Perugia
Proposal title	How to reduce the incidence of acute GvHD and leukemia relapse after HSCT with Treg/Tcon adoptive immunotherapy.
Keywords	Immunotherapy; Treg cells; T cells/TCR; GVHD and/or Graft versus Tumor; Hematopoietic stem cell transplantation (HSCT)
PhD project description	Our Center demonstrated extensively T cell-depleted haploidentical (haplo) hematopoietic stem cells transplants (HSCT) may cure high risk leukemia patients across the HLA barrier without GvHD. T cell depletion without the need of post-transplant immune suppression gave the opportunity to discover the beneficial role of donor vs recipient natural killer (NK) cell alloreactivity which reduced the risk of GvHD and leukemia relapse. T cell-depleted transplant platform was also the best setting to explore donor immunotherapy. Recently, we showed infusion of donor regulatory T cells (Tregs) followed by conventional T cells (Tcons) at the time of transplant prevented GvHD while favouring GvL effect. In our clinical trials we observed low incidence of posttransplant leukemia relapse in high-risk acute leukemia patients. Even though we further decreased leukemia relapse and non-relapse mortality (NRM), we still observe 30% aGvHD in the absence of cGvHD, 10% relapse and 20% NRM in the haplo transplant setting. In Clinical Immunology Laboratory at Hematology section at Perugia University and General Hospital we are developing a project to further reduce GvHD and infection-mortality and relapse. Within such studies we propose a PhD research that aim to reduce incidence of GvHD: 1) by the use of citokine priming of Tregs in order to potentiate their inhibitory function, 2) by the use of drugs in Treg preparation that are able to preserve Tregs while eliminating Tcon contamination that could be responsible of GvHD. Moreover such project aims to design new donor or third party antileukemic car cells to eliminate residual leukemic cells.
Main topics of the lab	Clinical immunology in blood cancer, HSCT and immunotherpay
Short description of the lab activity	Laboratory of Clinical Immunology is part of Laboratory of Integrated Medicine in the Haematology section at Perugia Unversity and General Hospital. Lab is involved in the study of blood cancers, immunological cancer control, immune-rebuilding after hematopoietic stem cell transplantation, biological mechanisms at the bases GvHD/GvL effect.
Main research area	Immunology
Group composition	Total members of the lab are 5: Loredana Ruggeri is the head, 2 technicians, 2 Biotechnologists
Institutional page link	https://www.ospedale.perugia.it/strutture/ematologia
Lab website link	

Social media link	
Lab bibliography	Haploidentical age-adapted myeloablative transplant and regulatory and effector T cells for acute myeloid leukemia. Pierini A, Ruggeri L, Carotti A, Falzetti F, Saldi S, Terenzi A, Zucchetti C, Ingrosso G, Zei T, Iacucci Ostini R, Piccinelli S, Bonato S, Tricarico S, Mancusi A, Ciardelli S, Limongello R, Merluzzi M, Di Ianni M, Tognellini R, Minelli O, Mecucci C, Martelli MP, Falini B, Martelli MF, Aristei C, Velardi A Blood Adv 2021 Mar; 5: 1199