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|  | **program Information** | | |
| **NO.** | |  | |
| **Program Type** | | Degree Based …………….....  Non degree-Based ……..…. | □  □ |
| **Level of Study** | | Undergraduate ………..……  Master …………………..……...  PhD ………………………..…….  Post Doc …………………..…..  Specialty ………………..…….  Subspecialty …………………  Fellowship ……………..……..  Short term Course ………… | □  □  □  □  □  □  □ |
| **School** | | School of Medicine, Mashhad University of Medical Sciences | |
| **Department** | | New Sciences and Technologies | |
| **Major/ Name of Program** | | Post-doc or fellowship in Innovative Cancer Therapy  (Title: Identification of novel anticancer agents and evaluation of 3 novel prodrugs of curcumin in colorectal and gastric cancers) | |
| **Keyword(3 Words)** | | Colorectal/ gastric cancer, Curcumin, Novel anticancer agents | |
| **Language Requirement** | | English | |
| **Admission Requirement** | | MSc or Ph.D. in biomedical/biomolecular sciences, cancer, oncology | |
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| **Description (500 words)** | | Colorectal and gastric cancers are the leading cause of cancer related death, mainly because of its metastatic spread and multifactorial chemo resistance. Despite extensive efforts in clinical management of patients, the prognosis of this cancer is still poor. Thus, novel anticancer agents are warranted to overcome these problems. Recently, the antitumor activity of curcumin has been investigated in different tumor types as well as in Cardio Metabolic Diseases.  Aim: in the present study, we want to explore the molecular mechanism underlying the anticancer activity of 4 different forms of curcumin in colorectal and gastric cancers in vitro and in vivo. | |
| **Complete Description** | | Colorectal and gastric cancer cell lines will be cultured in vitro. The viability of the cells in different concentrations of curcumin will be evaluated by MTT assay, as described previously (Avan et al., Cancer Res 2013).  The cytotoxicity of these novel agents will be determined in our previous novel model system, 3 dimensional cell culture model (spheroid), as described earlier (Avan et al., Cancer Res, 2015; Avan et al., Clin Oncol. 2015; Avan et al., Oncotarget. 2014 Jul 30;5(14):5335-49).  We will also perform invasion and migration assays to assess the invasive and migratory behaviors of the cells before and after treatment with our agents (Giovannetti E, Wang Q, Avan A, et al., J Natl Cancer Inst. 2014 Jan;106(1):djt346).  The expression levels of some candidate genes at mRNA and protein involved in cell cycle, apoptosis, migration, as well as the markers of the Wnt/b-catenin pathway, using real-time quantitative RT-PCR and western blot, as described (Avan et al., Cancer Res. 2013 Nov 15;73(22):6745-56; Avan et al., Curr Pharm Des. 2013;19(5):940-50).  We will also explore the antitumor activity of these agents in new developed mouse model (Avan et al., Cancer Res. 2013 Nov 15;73(22):6745-56; Cancer. 2015 Jul 28. doi: 10.1002/cncr.29598; Giovannetti E, Wang Q, Avan A, et al., J Natl Cancer Inst. 2014 Jan;106(1):djt346).  Furthermore, To get more information about the running of this project, please contact the group leader and read more information from our previous recent publications.  <http://www.ncbi.nlm.nih.gov/pubmed/?term=avan+a>  <http://www.ncbi.nlm.nih.gov/pubmed/?term=sahebkar+A> | |
| **Program Detail** | | In the current program, we will run this research program, as described above, together with some related courses including *Molecular Medical Genetics, Molecular Biology Techniques , Bioinformatics and Innovative Cancer Therapy* | |