SE&T Colloquium Series-Winter 2018

Speaker	Dr. Bing Yang Department of Biology
Title	***CAR T and Immunotherapy***
Abstract	Immune system can eliminate bacteria and viruses after infection. It has been a dream for scientists to turn on the immune system again tumor so that it can also be eliminated. In the last 10 years, great progress has been made in turning on immune system against tumor. With the development of new immunotherapy, 20% of some previous incurable solid tumors can now be cured. Another strategy is to engineer the immune system so that it can recognize the cancer cells. T cells are responsible for eliminating viruses after infection. The receptor for T cells can be engineered so that it can use antibody to recognize the mutated antigen on cancer cells and mount an immune response against cancer cells. The engineered T cells are called chimeric antigen receptor T cells (CAR T). During my sabbatical research last year, I have cloned an antibody gene against a tumor antigen named Globo H antigen. Part of this gene was linked together by a special PCR procedure to form a single chain antibody. This single chain antibody gene was further linked to the signal transduction portion of the engineered T cell receptor gene to generate a CAR gene. The CAR gene was then inserted into lentivirus vector so that a lentivirus producing CAR can be generated. The virus was used to infect T cells from healthy donors. The T cells are now able to kill any cancer cells that have Globo H antigen on the surface. Many types of breast cancer, colon cancer and pancreatic cancer have Globo H antigen on the surface thus can be the target. The characterization of the CAR T is ongoing and it is hopeful that animal study can be done to test this CAR in animals.
Date	Tuesday, March 13
Time	4:10-5:00pm
Place	Pioneer 240
	Refreshments will be served at 4:00pm.