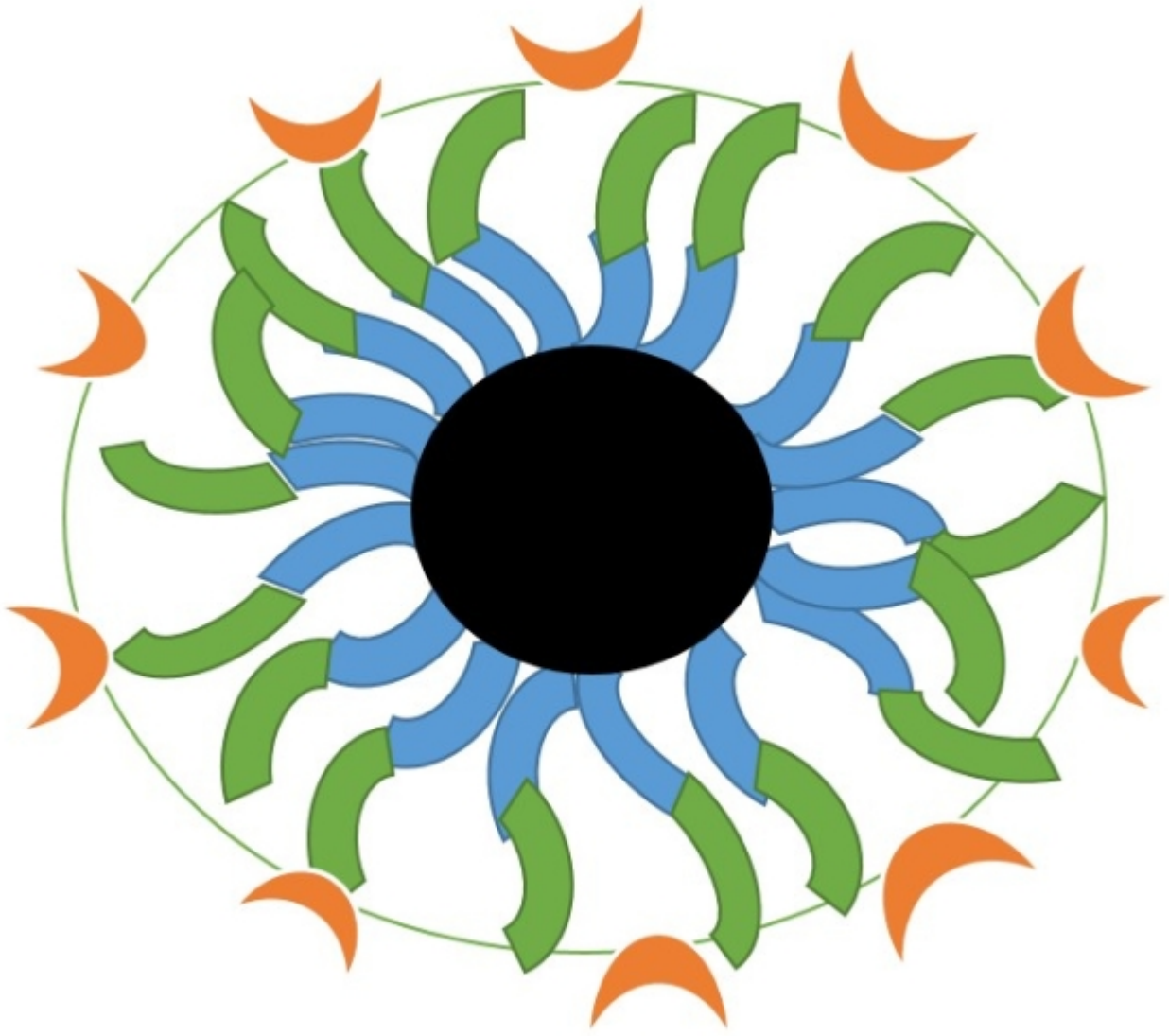
Targeted Drug Transportation to Tumors [1]

Submitted by Janet Marielis Crespo Cajigas [2] on 31 July 2015 - 11:18pm

[2]



The research I was developing during this summer REU program was about assembling a new cancer treatment that diminishes the damage that contemporary cancer treatments inflict on our bodies. We are focusing on Triple Negative Breast Cancer because this form of cancer has limited options for treatment. The suggested new treatment that I am currently working on is based on utilization of particles called a micelles and it is composed of a magnetic nanoparticle core coated with a shell made out of a copolymer called PEG-PLGA. The image that goes with this post is a model of the micelle; where the blue is PLGA, the green is PEG, the orange is a target system, and the black is the nanoparticle. The PLGA part of the shell is hydrophobic and it is in charge of encapsulating the drug (which is also hydrophobic) while the hydrophilic part of the shell, PEG, helps the micelle travel through our bloodstream in an easier way for a longer time as it reduces the chances of our white blood cells from eliminating them. Some of the micelles will eventually deposit in the tumor area and attach themselves to the cancerous cells due to the target system. With the use of a magnet in the area of the tumor, the nanoparticles will generate enough heat to cause the release of the drug from the copolymer thereby attacking the cancerous cells and minimizing the contact of the toxic drug with healthy cells.

Tags:

- UPR-Mayagüez REU RMSM Blog [3]

Links
[1] https://www.cienciapr.org/en/blogs/soft-matter/targeted-drug-transportation-tumors?language=en [2] https://www.cienciapr.org/en/user/janetcrespo1?language=en [3] https://www.cienciapr.org/en/tags/upr-mayaguez-reu-rmsm-blog?language=en