Exercises and Answers for Europe PMC training course

Question 1:

You are working on spermatogenesis in rats. At a conference you meet a principal investigator, who mentions a paper he published in 2015. He and his group showed that the drug rapamycin that you were planning to use in your studies has a negative effect on mitochondria in human Sertoli cells. You don't remember the PI's name, but you remember that he works at the University of Beira Interior. You want to use their experimental setup, so you need to find that paper. How will you do this?

Question 2:

You are applying for a position in the lab of Anne O'Garra. The project is a continuation of her ERC grant that dealt with molecular mechanisms of pathogenesis in tuberculosis. You want to prepare for an interview, but you have limited time. You want to read her three most impactful papers, all of the publications related to the grant, and a couple of recent reviews on the topic to get an overview of the field. How will you do this?

Question 3:

You work in the field of immunology and for your project you need to perform a single cell RNA seq for macrophage population. You don't have the expertise in house, so you are looking for a potential collaborator, who has used this setup. You want to find a couple of groups who published papers on this topic. How will you do this?

Question 4:

You want to devise a strategy to knock out your gene of interest in cardiomyocytes using the CRISPR Cas9 system. You would like to find a couple of recent publications where CRISPR Cas9 was used for editing the cardiomyocyte genome. You want to focus on publications that use this system as a methodology, and skip the ones that discuss CRISPR in general as a tool. How will you do this?

Question 5:

You work in the field of paleobotany on Permian flora of South America. You do not want to miss new papers that might be published in your field. How do you create a comprehensive search for your topic?

Question 6:

You work in the field of paleobotany. You follow the work of two groups: Torsten Wappler and Jean Galtier, who are two experts in the field that you know of. The articles on your topic often appear in PLoS One and American Journal of Botany. How do you set up and save a search to alert you to new additions from these groups or journals?

Question 7:

A researcher named González JM is working on malaria at Universidad de los Andes. You want to read his work and focus on his most prominent papers. How will you do this?

Question 8:

You are a researcher with expertise in structural biology. You are starting a new lab that will focus on the causes of Parkinson's disease. You are writing a grant application for a new project, looking at potential drug targets. You would like to know for which proteins implicated in the disease is the structural information already available. You also want to know about the studies that have used small molecules to target different components of the Parkinson's disease pathway. How would you look this up?