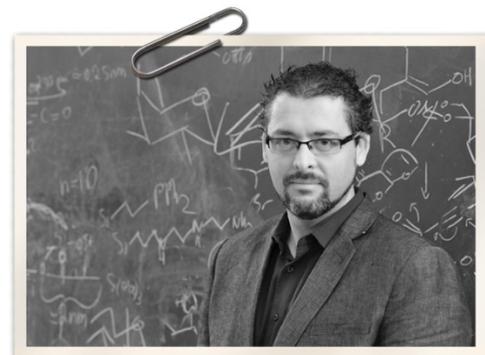


Career Connection: Interview with Dr. Denis Giguère



After watching the video of an interview with Dr. Denis Giguère (<https://www.youtube.com/watch?v=znH0Fu93aww>), answer the following questions:

1- Which different universities has Dr. Giguère attended, and what level of study did he complete at each one?

- University of Ottawa: B.Sc. in Pharmaceutical Science

- University of Montréal: M.Sc.

- University of Montréal: Ph.D.

- Scripps Research Institute, San Diego: Post-Doctoral Fellowship

2- What advantages can studying and participating in several different research projects at different universities have for a professor and researcher like Dr. Giguère?

(Answers will vary) These diverse experiences have greatly benefitted Dr. Giguère by providing him with broad background knowledge in chemistry and biopharmaceuticals. This knowledge helps him to advance his projects and advise his students.

3- A career in a scientific field often requires scientists to participate in conferences or seminars that take place around the world. At these events, researchers discuss recent advances in their labs and network with their peers in order to establish collaborations. Explain why a good knowledge of English is important in these situations.

As in many fields, participants traveling to conferences from many nations must be able to understand each other. The most universally used language of science is English. As well, the majority of chemistry journals are published in English. For these reasons, it is essential that persons interested in a scientific career have proficiency in the language.

4- In a few sentences, describe the different research project that Dr. Giguère and his lab members work on at l'Université Laval.

Dr. Giguère describes three research projects in his laboratory, all of which use carbohydrates as the starting materials for new medical treatments. First, he seeks to develop an antifungal vaccine as a new treatment against fungal infections. The second project is searching for a molecule that can slow down the AIDS virus. Finally, Dr. Giguère and his team are working to develop a new molecular probe.



5- Aside from his research, what else is Dr. Giguère particularly proud of?

Dr. Giguère is proud of having worked with scientists of many nationalities during his academic journey. This work has resulted in the development of new procedures for making complex molecules from simple sugars. His work with young scientists is also a source of pride, and Dr. Giguère hopes that his students' discoveries will lead to scientific innovations.

6- In his interview, Dr. Giguère referenced proteomics and genomics. In your own words, what do these terms mean?

Proteomics: The study of an entire set of proteins in an organism (the proteome), and its use in chemical, medical, and other processes.

Genomics: The study of an entire set of genes in an organism (the genome), and its use in chemical, medical, and other processes.

7- Why does Dr. Giguère believe that in the years to come, many discoveries will be made that will use sugar-based molecules for medical purposes?

He points out that as the number of researchers in the field increases, so too will the number of discoveries. Sugars have been found to play a role in many human metabolic processes, and understanding these roles could lead to promising treatments for diseases such as cancer and diabetes.

8- What are the different branches of chemistry described by Dr. Giguère, and what is each one concerned with?

Analytical chemistry (quantifying the composition and structure of matter), quantum chemistry (theoretical chemistry), petrochemistry (chemistry of oil and fossil fuels), and organic chemistry (chemistry of carbon-based compounds)

9- In addition to the qualities needed to be a good chemist, according to Dr. Giguère what are the qualities of a good organic chemistry researcher? Justify each of your choices.

- Autonomy: In many cases, a chemist may be working alone on a project and may not have immediate assistance from co-workers. Therefore, an organic chemist must exercise good judgement and decision-making.

- Observant: Organic chemists must recognize small observations that could become either big discoveries, or big problems

- Analytical: Chemists must be conduct their experiments carefully and methodically in order to draw meaningful conclusions.

10- According to Dr. Giguère, which atom is the basic element of organic chemistry?

Carbon

