



Sloan Career Cornerstone Center

Profiles of Chemists



Rogene Henderson

**Senior Scientist
Biochemical Toxicology Group
Lovelace Respiratory Research Institute
Albuquerque, NM**

Job Description:

Senior Scientist, Biochemical Toxicology Group

Advice to Students:

"Developing writing and speaking skills are essential for getting funding and for writing reports."

Interview:

Rogene Henderson is a senior scientist at the Lovelace Respiratory Research Institute in Albuquerque, NM. She performs research to determine the health effects of inhaled pollutants. Henderson's work includes reading the literature to determine what research has been done in the area, generating testable hypotheses and developing approaches to test the hypotheses.

Henderson's research involves some animal handling and the development of chemical analytical techniques to detect pollutants and their metabolites in body tissues and fluids. She uses mathematics to describe the relationships between air concentrations of chemicals and body concentrations of the chemical or its metabolites and how these concentrations change with time. She writes up results of her research for publication in scientific journals.

Much of Henderson's work is related to regulation of air pollutants and her research is often audited by outside people who have an interest in the regulatory process.

Henderson cites the following as an example of a typical project: An airborne chemical is suspected of causing cancer in humans. Animal studies must be done to determine how the body metabolized the compound, how the compound and its metabolites are distributed in the body and if the metabolites bind to macromolecules such as tissues and fluids. This involves synthesis of standards for the proposed metabolites. Rats or mice are exposed to the chemical and tissues and fluids are collected at different time points after the exposure. The samples are analyzed and the half lives for metabolism and for clearance of the compound from the body are calculated.

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Personal characteristics that helped in her job are scientific curiosity, a thoughtful imagination, hard work, and ability to write and speak well enough to sell her ideas to research funding agencies. The ability to work well with others is important for Henderson since she works with teams of scientists. Working in teams is essential because, she says, real-world problems seldom come neatly packaged for one discipline to study.

A career in chemical issues in toxicology is an exciting one, says Henderson. "It is an opportunity to help keep our environment clean and to prevent pollutant-induced disease. But to succeed requires a lot of hard work and devotion to the task. You have to ask if that is really what you want to do and if you want to design experiments or help with the chemical analyses needed by the person who designed the research. Both types of jobs are needed and fulfilling, but each is different." She also recommends developing writing and speaking skills which are essential for getting funding and for writing reports.

Chemists are employed in toxicology by government and academia as well as by both small and large private firms. A related area is pharmacology and chemists are hired by pharmaceutical firms for that work.

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