



## Careers In Virology

### INTRODUCTION

Health officials around the world continue to battle the new strain of Corona virus, first detected in the central Chinese city of Wuhan in December. The novel corona virus (nCoV) is a new strain, dubbed SARS-CoV-2, which has now infected more than 2 million people in the world. Besides human lives, businesses have been affected as well.

Whilst, a few years ago, HIV dominated the headlines, today people are more interested in influenza or tropical viruses such as Zika, SARS or Ebola, which in turn are covered more widely and frequently in the non-medical media. Now, we have a new strain of Coronavirus – SARS-CoV-2. All these make the field of virology an important area of study and research.

### WHAT IS VIROLOGY?

Virology is all about understanding viruses – from more common infections such as chicken pox to new and emerging infections like Corona virus, SARS, Zika and Ebola.

Virology is the branch of science that deals with the study of viruses and virus-like agents, including (but not limited to) their taxonomy, disease-producing properties, cultivation, and genetics.

Essentially, virology is a specialized branch within the broad field of microbiology. Compared to the other organisms in microbiology, viruses are very unique with different characteristics (with regards to multiplication,



structure, etc) that set them apart.

### IMPORTANCE OF VIROLOGY

Viruses are some of the most diverse forms of life in the world. This is often reflected in the diversity of those who commit their lives to study viruses and the very different ways in which they have become interested in the subject. Viruses have many routes of infection, ranging from human behaviors through to insect bites.

Given that viruses are of medical and veterinary signifi-

cance, virology has increasingly become one of the most important sub-disciplines of microbiology that has allowed researchers to not only discover treatments and cures for the diseases they cause but also use them for pharmaceutical purposes.

### THE ROLE OF A VIROLOGIST

As a virologist, you'll be expected to learn about how viruses spread, how to isolate them, and how to diagnose, treat and prevent infections. Virologists spend part of their time in microbiology or virology laboratories. Indeed, they work in many different types of laboratories. For example, in the research laboratory, they use genetic characterization to identify novel or emerging agents, which enable them to develop diagnostic assays that can be used to help define the spread of infection in both humans and animals.

Because many different people need a virologist's

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expertise, they work closely with a wide variety of medical staff. They advise other doctors over the phone, attend multidisciplinary meetings, visit staff and patients in wards, clinics etc. They may even work internationally, for example with the World Health Organization, and be involved in global health problems. Virologists also teach trainees and are involved in the research.

### SKILLS NEEDED

**An analytic and inquisitive mind** – you need to be able to interpret accurately a range of different tests and their results, and take a critical view on all investigations.

**Calm under pressure** – you'll need to be adept at dealing with changing priorities, from re-emerging threats to seasonal flu. If incidents increase in your community or hospital ward, work can become pressurized and unpredictable.

**Good communication skills** – you'll work with many people at various levels in hospitals, public health, and other sectors, so being able to share clear knowledge and advice is vital.

**Molecular Biology skills** – Cell Culture, PCR, Assay Development, handling laboratory equipment and tools, which may include: air samplers or collectors, infrared spectrometers, analyzing equipment and sterilizing equipment.

(IT & Software skills are also required.)

### EDUCATIONAL REQUIREMENTS

You need to have Biology, Chemistry and Physics in your high



school (10+2) level.

At the undergraduate level, you could study Microbiology (along with Physics and Chemistry as Pass papers). Alternatively, you could also pursue MBBS, Biomedical Sciences or Biotechnology at the Bachelors level.

At Masters, you could study Microbiology, Medical Microbiology, Immunology or Virology. With a Master of Science in Microbiology, you can hunt for positions as a supervisor or laboratory manager, research associate or instructor on the community college level.

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A Doctoral Degree, Ph.D. in Microbiology (specializing in Tropical Medicine or Infectious Diseases) is necessary for the uppermost posts in this field, such as a professor at a college/university, researcher, or a research director.

### TOP COLLEGES & INSTITUTES FOR VIROLOGY IN INDIA

- National Institute of Virology, Pune
- Sri Venkateswara University, Tirupati
- Savitribhai Phule Pune University, Maharashtra
- Manipal University, Karnataka
- Amity Institute of Virology and Immunology, Noida
- Karpagam Academy, Coimbatore

by Arwa Saifi (Mumbai)

Arwa Saifi has worked with 'Education Times', a supplement of India's leading newspaper 'The Times Of India.' She has been the Editor of various magazines & has also authored the book titled 'Happiness Lies Within'.