# Hela Azaiez,PhD at the University of Iowa, uses SVS to understand the molecular genetics of hearing loss

Hearing loss is the most common sensory defect in humans. It affects roughly 1 in 500 newborns, and by the age of 80 approximately 50% of people have some type of hearing loss. Hearing loss has become an enormous burden in healthcare. Perhaps more importantly, studies have shown that hearing loss also affects one's quality of life, lowering social interactions as communication deteriorates. However, for Hela Azaiez, an associate research scientist at the University of Iowa, the commonality of hearing diseases is what makes them so interesting to study.

Azaiez is a part of the Molecular Otolaryngology and Renal Research Laboratories (MORL) directed by Pr. Richard Smith at the University of Iowa, which focuses on hereditary hearing loss and renal diseases. The lab's goal is not only to understand and investigate the underlying molecular genetics behind these diseases, but ultimately develop novel therapies for treatment. Currently there are a variety of projects that the team is working on. Some of the most important projects being novel gene discovery for different types of deafness and the investigation of genetic contributions to age and noise induced hearing loss. Equally important is the development of next-generation sequencing platforms and gene panels for research and diagnostic purposes.

When the lab began to quickly accumulate large amounts of data from next-generation sequencing, the need arose to analyze massive quantities of data quickly and efficiently. At this point, there were two options for the lab. The first option was to hire bioinformaticians and biostatisticians to assist the researchers with their analysis. However, in the past, Azaiez had found the back and forth iterations to get what she wanted from the data to be time-consuming. Having a middle-man between her and the data simply was not productive, especially in instances when perhaps only a small parameter needed to be changed.

Then, SVS came into the picture and became a second viable option for Azaiez. She says, "It opened so many doors for my research. It allowed me to explore new ideas. It allowed me to do stuff I never thought was even possible to do in that amount of time, so I could test so many hypotheses. All that I had to do is click a button." SVS became the obvious choice for her analysis because it allowed Azaiez to cut out the back and forth communication and put her in control of exploring and analyzing the data.

Like many others who end up in the field, Azaiez fell in love with science when she was a child. What pushed her into genetics specifically was learning about DNA in high school. After that, she knew she wanted to work with DNA and molecular biology. Azaiez received

**QUICK FACTS**

**Name:** Hela Azaiez, PhD

**Title:** Associate Research Scientist

**Lab:** Molecular Otolaryngology and Renal Research Laboratories

**Institution:** University of Iowa

**Location:** Iowa City, Iowa

**Research Focus:** Autosomal Dominant Non-Syndromic Hearing Loss

**Golden Helix Software:** SNP & Variation Suite

*The Old Capitol on the University of Iowa Campus*

her Bachelor's in Natural Sciences and her Master's in Biological Engineering in Tunisia before coming to the US to complete her PhD in Human Molecular Genetics at the MORL where she works in now. After finishing her PhD and a Post-doc in the lab, Azaiez went back to her home country Tunisia as an Assistant Professor at the Pasteur Institute for two years. However, the scientific environment and resources available in the US and the talented and excellent team at MORL called her back to the lab where she leads the hearing research team.

*Dr. Hela Azaiez*

Almost 360 million people are affected with hearing loss and it is estimated that by 2020 approximately one billion individuals will suffer from some type of hearing impairment. These staggering statistics portray the critical need for studies in the area, and luckily some are in the capable hands of Azaiez (and SVS)!

## *About Golden Helix*

*Golden Helix has been delivering industry leading bioinformatics solutions for the advancement of life science research and translational medicine for over 16 years. Our innovative technologies and analytic services empower scientists and healthcare professionals at all levels to derive meaning from the rapidly increasing volumes of genomic data produced from micro-arrays and DNA sequencing. With our solutions, hundreds of the world's top pharmaceutical, biotech, and academic research organizations are able to harness the full potential of genomics to identify the cause of disease, improve the efficacy and safety of drugs, develop genomic diagnostics, and advance the quest for personalized medicine. Golden Helix products and services have been cited in over 800 peer-reviewed publications.*