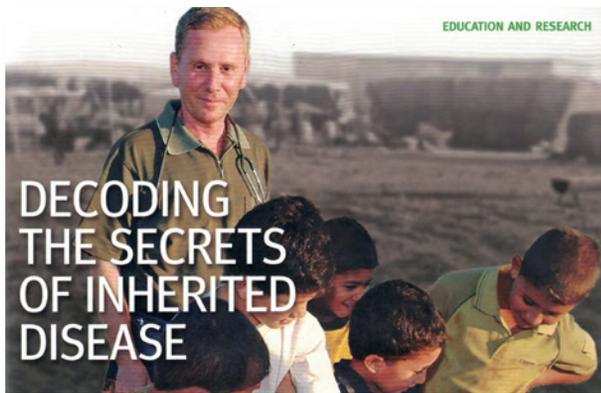


The Genetics Institute at Soroka Medical Center

The Genetics Institute at Soroka Medical Center, headed by Prof. Ohad Birk, brings together basic scientific research and effective translational clinical applications. It serves a population that includes some 800,000 Jews, mainly non-Ashkenazi, and a Bedouin community of about 250,000 people. The Bedouin community, in which it is common for people who are closely related to one another to marry and have children, is afflicted with many unique and severe hereditary diseases.



MIDYEAR IN 2000, Prof. Ohad Birk decided to return to Israel from the U.S., where he had been engaged in postdoctoral research at the National Institutes of Health. He brought with him both M.D. and Ph.D. degrees, research experience at the Weizmann Institute, and some background in clinical pediatrics—credentials that earned him attractive job offers. But the academic positions that interested him would not begin for eight months. How to fill the time?

He met Prof. Rivka Carmi, then head of the Genetics Institute at Soroka University Medical Center, in affiliation with Ben-Gurion University of the Negev. She suggested he join her. He thought the opportunity might give him interesting material for his own research so he decided to spend the time there. Little did he suspect that he would never leave.

"What happened was that for two or three days every week patients walked

Top: Prof. Ohad Birk with children in a Bedouin village

"Diseases we see in this generation will persist forever in generations to come. People will continue to be carriers so testing needs to go on."

— PROF. OHAD BIRK

in with diseases no one knew anything about—diseases caused by genetics. It was like a mass casualty in front of my eyes. It felt so obvious that this was the research I wanted to do that I don't remember making a decision—it was as if I had prepared for it my entire life."

"When in 2001 Prof. Carmi left the Institute for other BGU positions, culminating in the presidency of the University, Birk became head of Soroka's Genetic Institute. He also established the Morris Kahn Human Molecular Genetics Lab at BGU with an ambitious target: "To find,

in our own hands, in Beer-Sheva, the genetic causes of human disease—what's going on at the molecular level."

The region's Bedouin population gave him a unique window into this work. Nearly 60 percent of marriages in the Bedouin community are between first cousins, a tradition that creates a heartbreaking number of infant deaths and children with severe birth defects.

In less than three years, Birk's lab made its first discovery: a gene responsible for one of the most common Bedouin diseases and its precise biochemical mechanism. Since then, Birk's lab has discovered more than 40 genetic diseases. Many are common not only to the Negev's Bedouin, but to the Arab world overall, where the same marriage tradition persists. And Birk has also discovered the cause of two of the most common genetic diseases among Sephardic Jews—Progressive Cerebello Cerebral Atrophy (PCCA) and PCCA2. As a result, both have been nearly eradicated by prevention, much as Tay-Sachs disease was eliminated among Ashkenazi Jews.

In order to enable diagnosis and prevention of diseases that affect both the Jewish and Bedouin populations of the Negev as well as others, the genetics research lab studies and has deciphered the molecular bases and mechanisms of more than 40 human diseases, including some of the most prevalent and serious hereditary diseases of Arabs and Jews.

In fact, three syndromes have been named after Prof. Birk. With his team at Soroka, Birk also implements his scientific findings in wide-scale, far-reaching carrier testing programs that have led to a 30% reduction in the infant mortality rate in the Bedouin community and the near-eradication of two of the hereditary diseases most common among Jews of Moroccan and Iraqi origin.

Prof. Birk is a recipient of numerous awards and has published in top scientific journals such as *Nature*, *Nature Genetics*, *PNAS*, and the *American Journal of Human Genetics*. The translational impact of his work has also been well publicized in the lay press, from the *New York Times* to Al Jazeera and BBC World.

Soroka Medical Center

- This year, Soroka Medical Center is celebrating the 60th anniversary of its establishment. In the sixty years of its existence, Soroka has developed from a small, local hospital to a leading regional medical center that is a critically important strategic asset to the State of Israel.
- Soroka Medical Center is among Israel's largest and most advanced hospitals and the country's busiest.
- Soroka is the only major medical center in the entire Negev, serving a population of more than 1.2 million inhabitants, including 400,000 children, in a region that accounts for 60% of the country's total area.
- Each year, excellent care is provided for more than 595,000 visits at outpatient clinics; 248,000 patients visit our Emergency Medicine Department (the busiest in the country); 83,000 inpatient admissions; over 30,000 patients undergo surgery; and more than 17,000 babies are born. Soroka's neonatal and pediatric departments provide family-centered intensive care with world-class survival rates.
- Soroka's Trauma Unit is the largest and busiest in Israel, always on call, 24 hours a day, 365 days a year.
- Soroka's staff is dedicated to promoting research and providing the best medical and emergency care available while relating to patients in a holistic manner.
- Soroka was among the first hospitals in Israel to pass the Joint Commission International (JCI) accreditation process for quality and safety. This is the fourth time we have passed this evaluation and we are the only Israeli hospital to hold this standard for more than a decade.

