The Azrieli National Centre for Autism and Neurodevelopment Research
at Ben-Gurion University of the Negev
In 2018, scientists and physicians from Ben-Gurion University of the Negev (BGU) were awarded a competitive grant from the Israeli Ministry of Science to create the National Autism Research Center of Israel. This was the first time that the Israeli government had invested in the creation of infrastructure for autism research and the competition was fierce. We are proud and honored to have been chosen for this critical national role.

The vision of the center is to turn Israel into an international leader in the development and implementation of effective autism diagnosis and therapies.

To fulfill this vision, the center has built a national network of data collection sites at clinical centers where autism is diagnosed and treated. A wide variety of data is collected in a standardized manner at these sites and integrated into a national autism database that is freely available for academic research. In addition, biological samples from participating families are collected into a national autism biobank. By creating easily accessible data, samples, and research infrastructure, the center is revolutionizing autism research in Israel and supplying critical information to scientists, clinicians, industry leaders, and policy makers.

Today, approximately two percent of children in the Western world are diagnosed with autism – a fiftyfold increase compared to 30 years ago. The tremendous rise in the prevalence of autism has turned it into one of humanity’s biggest social and financial challenges.

Autism is a developmental disorder that is diagnosed according to behavior: clinicians examine children for signs of impaired social communication and the presence of restricted interests and repetitive behaviors. Current interventions are based on behavioral therapies and debilitating symptoms typically continue throughout life.

Scientists around the world have come to the consensus that autism is not one disorder, but rather a family of distinct disorders with different, mostly unknown, causes (i.e., there are different sub-types of autism). Characterizing specific sub-types of autism is difficult, because it requires the collection of a variety of data such as birth records, MRI scans, EEG exams, and genetics from a large number of children. However, such research is critical for identifying the optimal treatments for each sub-type.
To identify specific sub-types of autism and develop more effective diagnosis and intervention techniques, scientists from BGU have partnered with physicians from Soroka University Medical Center, Maccabi Health Services, Clalit Health Services, Shamir Medical Center (Assaf Harofeh), Shaare Zedek Medical Center, and Sheba Tel Hashomer Medical Centre. Together, we have created a unique collaboration that integrates scientific research into community healthcare settings that provide clinical care in Israel. This partnership is remarkably rare on a global scale. It enables large-scale unbiased autism research by facilitating the participation of affected families from all ethnic and socioeconomic groups throughout the country. Moreover, clinical-research collaborations help focus the research on clinically meaningful questions while enhancing clinical care with the latest scientific knowledge and techniques.

The Centre has built a national autism database with data from more than 2,000 children with autism and their family members.
The Azrieli National Centre for Autism and Neurodevelopment Research integrates scientific research into community healthcare clinics where autism is diagnosed and treated in Israel. Through this unique collaboration invaluable data and samples are collected from hundreds of children with autism and their family members each year, thereby transforming autism research on a national scale.
Specific research efforts include the development of:

1. **A national network for coordinating and managing clinical trials.** Clinical studies of children with autism are relatively limited in Israel due to a lack of clinical research infrastructure. The unique scientific and clinical collaboration developed by the center will be utilized to carry out coordinated clinical trials in partnership with industry leaders. This will enable us to test the effectiveness of new targeted treatments with specific sub-groups of children who are most likely to benefit from them.

2. **A national genetics database.** While genetic research into autism has developed rapidly in North America and Western Europe, little is known about the genetics of autism in other geographic locales with different ethnic groups. We are currently the only center in the Middle East that is actively collecting genetic samples from children with autism and their parents. Studying the genetics of autism in Israel is critical, because the Israeli population has distinct genetics, making it likely that we will identify unique genetic autism risk factors that are relevant to specific ethnic groups.

3. **A national biobank.** Critical information regarding each child’s biology and development are available in blood, urine, stool, and hair samples. These samples enable assessment of hormone and metabolite levels, as well as toxins and parasites. We expect to identify specific types of autism that may benefit from specific medical treatments based on this information.

4. **New measures of autism severity using new technologies.** We are investing heavily in “digital phenotyping” techniques by developing a family of computerized systems that can identify and quantify the behavioral symptoms of autism. These techniques include analysis of video, audio, motion-capture, eye tracking, and sleep recordings. An important feature of these automated systems is their ability to assess the severity of symptoms over time to evaluate the effectiveness of treatments. This is essential for identifying optimal treatments for different children.

These research efforts include partnerships not only with a network of clinical sites, but also with researchers at other universities in Israel and throughout the world. Moreover, partnerships are being fostered with the Israeli ministries of Science, Health, and Education, as well as with the major national autism care organizations such as ALUT and Children at Risk.

www.autismisrael.org
autism@post.bgu.ac.il
+972-74-7795248
The Azrieli National Centre for Autism and Neurodevelopment Research at Ben-Gurion University of the Negev is revolutionizing Israeli autism research and driving an explosion of translational research with direct clinical impact.

To find out how you can help, please contact the Department of Global Strategic Advancement and Resource Development, at (+972)-8-646-1715 or donors@bgu.ac.il

www.autismisrael.org | autism@post.bgu.ac.il | (+972)-8-6479527