One of the world's leading experts in using behavioral strategies to prevent accidental injuries in children works at the Civitan International **Research Center.**

CIRC Researcher Dr. Schwebel has developed interactive websites and podcasts to improve safety in domains ranging from firearms to dog bite prevention.



The Civitan Translational Autism Research Core at the CIRC is a one-of-a-kind patient research database and bank of biological samples with the goal of connecting researchers, clinicians and families to promote cutting-edge interdisciplinary translational research in neurodevelopmental disabilities.



The Civitan Translational Research Core bridges the gap between rapidly advancing discoveries and the hope for targeted, effected treatments and supports to improbe the quality of life of people with developmental disability.

Small zebrafish are the focus of the lab of Dr. Summer Thyme. She is using mutants of the fish to study the function of genes linked to autism and childhood-onset CIVITAN INTERNATIONAL Schizophrenia.



Dr. David Knight at the CIRC is using MRI techniques to develop a better understanding of emotional dysfunction associated with mood, INTERNATIONAL anciety, and stress disorders.

DESEADC

Dr. David Knight at the CIRC is working on determining the impact of childhood poverty, violence exposure and substance use have on the N INTERNATIONAL neural circuitry the supports emotional function. FOR RESEARCH

More than 25,000 people from across North America have received care through the Civitan-ITAN INTERNATIONAL **Sparks clinic** in the last ten years.

Dr. Anita Hielmeland is testing new drugs and drug combinations to improve the treatment of brain tumors. Her lab studies a subgroup of stem cell-like brain tumor cells that can survive radio and chemotherapy.

Dr. Hielmeland has identified treaments that decrease cancer stem cell survival rates.

CIVITAN INTERNATIONAL

Dr. Vlad Parpura is testing a drug that reduces glioblastoma growth in animal models. If translatable to humans, it would aid treatment of this devastating disease that killed INTERNATIONAL **Senators** John **McCain and Edward Kennedy.**

A study going on at the CIRC in the lab of Dr. Matthew Goldberg is looking at a deficiency in the **PINK1** gene and how drugs could re-activate it, leading to possible prevention of NTERNATIONAL similar neruodegenerative diseases.

RESEARCH

Dr. Lucas Pozzo-Miller and Dr. David **Bedwell are exploring a revolutionary** way to treat Rett Syndrome patients with truncating mutations. This groundbreaking reasearch identifying drugs that "skip over" genetic mutations has the potential to be used in other disorders like muscular dystrophy and autism.

RESEARC

Dr. Alan Percy collaborates with 14 academic centers across the country to enroll participants with Retty Syndrome and related disorders in the NIH Rare Disease **Clinical Research** FRNATIONAL Network.

ESEARCI

Dr. Lahti is looking at the relationship between glutamate and brain function in patients with Schizophrenia. So far, her studies strongly support targeting the glutamatergic system for new drug IANOITAV development for this mental illness.

RESEARCH

Dr. Tim Townes is working on a cure for sickle cell anemia by taking a child's own bone marrow cells, editing their genes within, and then putting these cells back to make normal ITERNATIONAL red blood cells for the rest of a child's life.

Dr. Niwa is looking at early **Psychosocial stress and how it** alters adult behavioral patterns relate to mood, social cognition, information processing, motivation and maternal care.

Dr. Niwa's findings so far have shown a novel link between adverse early life events, sustained neuro-endocrine dysregulation and long-lasting behavioral defecits.

Drs. Edward Taub and Gitendra Uswatte have developed a rehabilitation therapy called **Pediatric CI Therapy for impaired** movement in children with Cerebral Palsy that helps through the entire age range of childhood.

Drs. Taub and Uswatte have recently modified their movement therapy to apply to cognitive impairment in adults after stroke, COVID-19 AN INTERNATIONAL and associated with aging.

Pilot work suggest that the CI Therapy approach works as well in the cognitive domain as it does in the motor area. **Drs. Taub and Uswatte have plans to** modify the technique so that it can be used with cognitive impairment in the children with Down's Syndrome and other conditions. ESEAR

Dr. Marti Rice focuses on factors that influence blood pressure in preschool children. It has been noted that weight may not be as big of an influence on blood pressure in preschool children as with adults and that stress and inflammation may be associated with elevations in blood FOR RESEARCH pressure in preschool children.

Dr. Robert Sorge's lab has explored the ways that diets affect the immune system and contribute to and alleviate pain. To translate this work, his lab completed a pilot clinical tiral of diets for knee pain and is working on examining racial differences in diet benefits for knee pain. FOR RESEARCH

Dr. Frances Lund's laboratory is working on a novel, nasal spray vaccine against SARS-COV2, the virus that

causes COVID-19 disease.

CIVITAN INTERNATIONAL

A novel gene therapy for dementia created at the **CIRC** is now advancing to clinical trials in human VITAN INTERNATIONAL patients.

Dr. Erik Roberson's laboratory has demonstrated that gene therapy may provide a novel approach for treating some people with VITAN INTERNATIONAL frontotemporal dementia (FTD).

Civitan International Research Center Director Dr. Craig Powell has demonstrated drugs showing promise for Alzheimer's may also help in patients with Down Syndrome.

Dr. Scott Cruikshank from the CIRC and colleagues focused on an area of the brain called the thalamic reticular nucleus – an area known for its role in childhood absence epilepsy. The study is necessary to understand how this part of the brain may guide attention INTERNATIONAL and potentially how focus is diminished in diseases like epilepsy. RESEARCH

Dr. Timothy Gawne has his eyes on answers for those who deal with myopia, or nearsightedness, which is now considered an epidemic in several parts of the world.

Dr. Gawne's lab at the Civitan **International Research Center is** researching visual clues the eye uses to regulate growth during childhood to come up with ways to prevent VITAN INTERNATIONAL nearsightedness all together.

RESEARCH

Dr. Elizabeth Sztul is exploring how mutations in a protein called BIG2 cause microcephaly and inhibit normal brain development

Dr. Matthew Alexander's lab is using hundreds of small zebrafish to determine better medicines for those who have a certain form of muscular dystrophy. Dr. Alexander wants to use the knowledge he's learned to understand why 25% of those with this form of muscular dystrophy develop autism.

RESEARC

Currently, there are 100 faculty and staff at the **CIRC** who are committed to bettering the lives of INTERNATIONAL individuals with I/DD.

RESEARCH

A Civitan scientist identified an essential amino acid that could reduce seizure events and improve memory loss in patients after seizures. Nearly 30% of patients with autism experience seizures.

RESEARCH

Civitan scientists identified a drug treatment that may improve irregular breathing and brain functions for individuals with Rett syndrome. RESEARCH

The Civitan-Sparks Clinic offers a range of clinic-based and community-based services focused on Autism Spectrum Disorders (ASD) available to individuals, INTERNATIONAL families, school personnel, and the community.

Children can be evaluated by psychologists who have been trained in the administration and interpretation of gold-standard instruments, as VITAN INTERNATIONAL well as age-appropriate checklists.

Individual and family-based programming is available for children from toddlers to young adolescents with a diagnosis of ASD. Interventions emphasize increasing independence, communication, social interaction, and community participation.

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The Program for Education and Enrichment of Relational Skills (PEERS) is a 14-week parentassisted social skills intervention for motivated teens with ASD. Teens are taught im-INTERNATIONAL portant social skills to practice these skills in group sessions. RESEARCH

The Civitan International Neuroimaging Laboratory (CINL) houses the Siemens Prisma 3.0T whole body MRI system is the most powerful 3T scanner commercially available for structural, functional, and spectroscopic brain and body imaging. **Research** at the N INTERNATIONAL **CINL** ranges from **basic MRI** engineering and psychics to multisite clinical trials. R RESEARCH