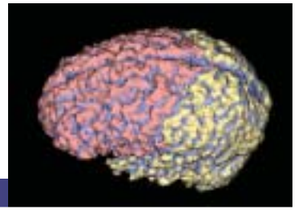
At UTMB in Galveston, groundbreaking research is putting together the pieces that will make it possible to recover from SPINAL CORD INJURIES, BRAIN INJURIES, STROKES, ALZHEIMER'S, PARKINSON'S, and other catastrophic neurological disorders



Connecting with hope

When University of Texas Medical Branch neuroscientist Claire Hulsebosch was a teenager, her thirteen-year-old brother was paralyzed by a gunshot wound to the spine. It's been forty years since then, but she vividly remembers the moment she learned he would never walk again. "We were told there was nothing that could be done," she says. "I asked, 'Well certainly there's research being done?' But the doctors said no. That was the way it was back then—there was no hope."

What the future spinal cord regeneration researcher was experiencing for the first time was a problem that had stymied medical science for thousands of years: the apparent impossibility of healing the vital networks of nerve cells that make up the spinal cord and brain. While most of the body's cells can reproduce spontaneously to replace those lost to illness or injury, cells of the central nervous system cannot. People whose spinal cords have suffered traumatic injury—or whose brains have been ravaged by strokes or diseases like Alzheimer's or Parkinson's—have been left with no chance for full recovery. Even worse, they've had little hope that they would *ever* get such a chance.

Until now.

Thanks to the discoveries made by scientists like Hulsebosch and her UTMB colleagues—who were leaders in learning how to keep human neural stem cells, a potentially powerful tool for brain and spinal cord restoration, alive and reproducing in the lab for years—we now stand on the threshold of a new era in medical care for the body's nerve centers.

Dr. Claire Hulsebosch

And UTMB researchers are leading the way.

In the last five years this team of prominent scientists has investigated new techniques to relieve the chronic pain associated with spinal cord injury, reduce the progressive damage that occurs in the hours and days after spinal cord trauma, and restore lost functions like bladder and bowel control.

For instance, UTMB scientist Ping Wu conducted a breakthrough experiment in which human neural stem cells raised in a test tube and implanted into the brains and spinal cords of lab rats were coaxed to develop into the kind of nerve cells needed to repair the damage done by Alzheimer's, Lou Gehrig's disease, and traumatic spinal and brain injuries.

And earlier this year, UTMB's Claudio Soto, a member of the university's George P. and Cynthia Woods Mitchell Center for Alzheimer's Disease Research, added to an already impressive series of breakthroughs in the detection and repair of the misshapen brain proteins responsible for Alzheimer's and the human form of mad cow disease, bringing science one step closer to the creation of revolutionary new methods of diagnosing and treating both mind-destroying disorders.

UTMB's leading role in creating a new world of neuroscience doesn't end in the laboratory. By forging partnerships between basic scientists and clinicians—drawing on its longstanding tradition of teamwork and collaborative investigation—UTMB's neuroscience program is pioneering an innovative model of medical research, one in which new discoveries will move from lab bench to the patient's bedside far faster than ever before. And by collaborating with other institutions through The Institute for Rehabilitation and Research (TIRR) Mission Connect program, UTMB has tied its strengths with those of other institutions, including Baylor College of Medicine, the University of Texas Health Science Center at Houston and the Texas A&M System Health Science Center, to speed the pace of scientific discovery and application even faster.

Dr. Claudio Soto

In the last five years this team of prominent scientists has investigated new techniques to relieve the chronic pain associated with spinal cord injury, reduce the progressive damage that occurs in the hours and days after spinal cord trauma, and restore lost functions like bladder and bowel control.

Dr. Ping Wu

"Teamwork really is the future of medicine, and that's a lesson we learned early at UTMB," notes Hulsebosch. "The entire time we at UTMB were fighting to disprove the old dogma that the central nervous system cannot regenerate, that it's too complicated to repair, we were working together. And now that we've created a new paradigm showing that nervous system repair is possible, we're working together—step by step, piece by piece—to make it a reality.

"Now I know it's achievable in time—that there *is* hope."

Drs. Claire Hulsebosch, Ping Wu, and Claudio Soto are affiliated with the UTMB Department of Neuroscience and Cell Biology (Dr. Henry Epstein, Chairman) and Department of Neurology (Dr. Tetsuo Ashizawa, Chairman).

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