

The January 5 issue of Nature featured discoveries by two separate research teams including INI members. The Carver College of Medicine [highlighted](#) the work, and I've continued thinking about this confluence as an example of both the value of teamwork and the "long game" of biomedical research. In both cases, the teams included an array of collaborators chipping away at their goals for a decade or more. We know our work is not about immediate results and that perseverance pays off.



Donna and Mark Santillan led the UI portion of a [study](#) that demonstrated the ability of plasma cell-free RNA (cfRNA) to reveal patterns of normal pregnancy progression and determine the risk of developing pre-eclampsia months before clinical presentation. Iowa's Women's Health Tissue Repository, which they direct, was one of eight centers contributing to the retrospective analysis of 2,539 banked plasma samples. With limited ability to conduct research with pregnant women, the Santillans' and colleagues tissue banks are crucial for making progress. Yet collecting enough

samples for meaningful analysis takes years. Their work carries extra weight when you consider the impact of pre-eclampsia on child development. Mark brings this valuable experience and perspective to our new [HAWK-IDDRC](#).

It also takes time and focus to identify animal models of disease or mechanism and translate that to humans. Together with New York University's Michael Long, who uses birdsong to study human speech, INI's **Jeremy Greenlee, Matthew Howard, and Christopher Kovach** [identified](#) a speech-planning brain network that is responsible for the ability to listen and respond in turn that is the foundation of natural conversation. The Long laboratory uses the courtship song of the zebra finch to study the circuit principles that enable the brain to step through well-defined sequences of neural states. To take this circuit study to a human model, he has been collaborating for the last decade with Greenlee and Howard, whose work with patients undergoing brain surgery is world-renowned.

Using a series of word games with patients who were awake while their brain activity was being monitored with electrocorticography electrodes placed on the surface of the brain, they measured brain activity while participants engaged in structured interactive tasks as well as unconstrained conversation. They localized responses to a frontotemporal circuit centered on the language-critical caudal inferior frontal cortex (Broca's region) and the caudal middle frontal gyrus—a region not normally implicated in speech planning. The identification of this circuitry could help us understand communication disorders like stuttering and apraxia, where speech planning is disrupted or abnormal.

I was interviewed recently for an article in the [Iowa City Press-Citizen](#) about the new Hawk-IDDRC and was quoted saying "you don't create a 634-page application in a day." (Be sure to check back for other profound scientific insights from me!) But this is related to the larger point that our work relies on years of incremental discovery and relationship-building. We may not get the dopamine hit of instant gratification, but we'll keep doing the work because we know it's the way to life-changing discovery.