Contrary to its common name, cat scratch fever requires neither a cat, nor a scratch. And its impacts can extend far beyond a fever. Even when patients have telltale symptoms of Bartonella infections, including swollen lymph nodes, the potential culprit can lurk for months or more.

“The basis of good medicine is an accurate diagnosis. It is the kindest form of therapy,” explains veterinarian Edward Breitschwerdt. His work in the Intracellular Pathogens Research Laboratory in NC State’s College of Veterinary Medicine led to startup Galaxy Diagnostics’ incorporation in 2007.

Using a novel culture material and multiple levels of DNA testing for Bartonella bacteria, the company is pushing a new frontier of precision medicine for people and pets. “We have the best test in the word for Bartonella” says Breitschwerdt, chief scientific officer for Galaxy.

Since the 1990s, Bartonella has been identified not only in cats but also in dogs, marine mammals and humans, and now horses, farm animals and wildlife, notes Breitschwerdt, who serves on state, national and international panels with a One Health focus that cuts across traditional medical boundaries. According to the Centers for Disease Control and Prevention, about 75 percent of recently emerging infections are of animal origin, and 60 percent of all human pathogens are zoonotic — or transferred from animals to people.

“NC State research has shown Bartonella infections often go undiagnosed as a mysterious illness or may be misdiagnosed as an immune-mediated disorder, like rheumatoid arthritis or multiple sclerosis,” adds Amanda Elam, company president since Galaxy’s clinical testing service was launched in 2009.

Since that time, Galaxy has performed more than 10,000 tests in animal and human medicine. Elam describes a bootstrap approach to company growth, through a mix of customer revenue, corporate sponsorship, and government loans and grants, such as $130,000 in loans from the North Carolina Biotechnology Center and $168,000 in funding from the National Institutes of Health Small Business Innovation Research, or SBIR, program.

Summer 2014 brought the company $550,000 from new investors. “We are looking to expand our range of testing to include other emerging stealth pathogens, such as Lyme disease, or Borrelia burgdorferi, and other tick-borne infections,” says Elam, who is also on the entrepreneurship faculty at NC State’s Poole College of Management.

Bruce Boucher recently joined Galaxy Diagnostics both as an investor and as chief financial officer. He was most recently a co-founder, launch president and CFO of Liquidia Technologies, a Research Triangle Park-based spinout from the University of North Carolina at Chapel Hill. Boucher started his entrepreneurial career as CFO and general manager of Magellan Labs, which was sold to Cardinal Health and later acquired by The Blackstone Group to become what is now called Catalent Inc.

A new partnership with IDEXX Laboratories, a leading veterinary diagnostics company, will help get information out to countless veterinarians about the risks of Bartonella infection for cats, dogs, horses and the people who care for them, along with Galaxy’s Bartonella ePCR™ test and other testing options. Physicians and veterinarians will still route blood samples directly to Galaxy as a specialty lab.

“The Galaxy story illustrates university technology transfer at its best. Dr. Breitschwerdt developed the technology needed to address an unmet medical need, then formed a startup company to make the technology available to patients,” notes Kelly Sexton, director of NC State’s Office of Technology Transfer.

High-risk groups are of interest. The research team — including Breitschwerdt and Ricardo Maggi, also of NC State and Galaxy, along with physician colleagues from Duke University, where Breitschwerdt is also on faculty — found DNA of at least one Bartonella species in the blood of 28 percent of 114 veterinarians or veterinary technicians.

“The public needs to be aware that fleas carry up to five species of Bartonella,” adds Breitschwerdt, a recipient of NC State’s Alexander Quarles Holladay Medal for Excellence.

Cats remain a key factor, as one in three are infected with naturally occurring Bartonella. That rate increases to four of five feral cats. To stop the spread of related infections, he offers a simple mantra: “Kill fleas. Kill fleas. Kill fleas.”

Learn more about Galaxy Diagnostics at galaxydx.com.
Learn more about Edward Breitschwerdt’s research at go.ncsu.edu/ed_breitschwerdt.