

Texas A & M Teams with IBM to Speed Drug Discovery for Tuberculosis

IBM

ARMONK, N.Y. and COLLEGE STATION, Texas - 01 Jun 2010: IBM (NYSE: [IBM](#) [1]) today announced that Texas A&M University used IBM supercomputing technology to carry out potentially life-saving tuberculosis research at a rate more than four times faster than was previously possible.

Tuberculosis is an infectious disease that causes nearly two million deaths per year, with an estimated one-third of the human population carrying a latent infection (1).

The bacteria responsible for tuberculosis are mutating to form various drug-resistant strains. Texas A&M researchers are sequencing the DNA of the mutated strains so they can be tested against different drugs. In a race against time, researchers must try to find drugs that are effective before the strains mutate again. With IBM supercomputing technology, they can sequence the DNA of a specific strain in hours instead of days.

Scientists at the Texas A&M Supercomputing Facility built a software package called the "parallel Genome Analysis Pipeline" (pGAP) to help fight tuberculosis by more quickly analyzing the genome of mutated strains on the Facility's "Hydra" cluster -- a 832-core IBM POWER system coupled with a 20 terabyte (TB), third party storage system managed by the IBM General Parallel File System (GPFS), a high-performance, extremely scalable clustered file system.

Developed for IBM's AIX operating system and based on Illumina's Genome Analysis Pipeline, pGAP allows data to flow almost automatically from an Illumina Genome Analyzer Iix to the Hydra cluster, where it can quickly process in parallel the large datasets created by DNA sequencing. Using pGAP together with IBM supercomputing technology is boosting genomics research at Texas A&M.

"IBM's Power Systems provide the performance we need to rapidly process data while GPFS prevents bottlenecks," said Dr. Raffaele Montuoro, computational scientist at the Texas A&M Supercomputing Facility and inventor of pGAP. "When combined with the performance and capability of our own pGAP software, Texas A&M researchers are achieving greater success in the fight against tuberculosis."

The Texas A&M Supercomputing Facility recently increased its processing muscle even further with the addition of a 2,592-core IBM iDataPlex, a highly scalable system that can lower power, cooling and space requirements. Known as "Eos," the new cluster totals 27.14 teraflops, which made it 418th on the Top500 list of the world's fastest supercomputers announced May 31, 2010.

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For more information on IBM visit www.ibm.com [2].

Texas A&M University

Opened in 1876 as Texas' first public institution of higher learning, Texas A&M University is a research-intensive flagship university with 38,000-plus undergraduates and more than 9,000 graduate students studying in over 250 degree programs in 10 colleges. Students can join any of 800 student organizations and countless activities ranging from athletics and recreation to professional and community service events.

1.) World Health Organization: Global tuberculosis control—epidemiology, strategy, financing. http://www.who.int/tb/publications/global_report/2009/en/index.html [3].

[SOURCE](#) [4]

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