

# From the South Pacific Ocean to Space Station

## -- *Changene, a 'pearl' of a company, NRP partner of the month*

"I went to Tahiti for adventure," reminisces Frank Chang, CEO of Changene, Inc., a NASA Research Park partner since 2003.

"I chose a remote atoll and landed on an 800-yard runway, at an airport with a bungalow terminal. On this tiny atoll in the middle of nowhere in the South Pacific Ocean, I saw, for the first time, a pearl farm and the Milky Way galaxy with my naked eyes."

"Trained in biomedicine, I realized the oyster must have molecule(s) able to regulate calcium crystals, like bricks, the way we build a wall. This mechanism is similar to bone formation, so I wondered - could this molecular process act as a possible counter-measure for bone mass loss in microgravity?"

In 2002, Changene officials filed a patent for a proprietary molecule supposedly responsible for pearl formation -- in short, a pearl gene.

Bone mass loss is a major challenge for NASA's planned lunar and Mars

exploration. Long-duration flights on the Russian Mir and the International Space Station have produced much data



*Frank Chang, CEO of Changene, presented the Pincta product rollout at a conference in March 2006.*

about the impact of prolonged exposure to microgravity, but no solution exists. NASA is still seeking effective counter-measures for bone mass loss.

Changene collaborated with the NASA Advanced Supercomputing division on molecular dynamic simulations. "Biotech research takes many years," Chang said. "It is a great advantage using supercomputers to speed up the processes; gratefully, Ames Research Center has the best supercomputer among NASA centers."

"With R&D moving forward, we have scheduled a clinical trial on this Pincta<sup>®</sup> product in FY07", Chang said. "It could be of great benefit to astronauts in microgravity and to 50 percent of the world's senior population with osteoporosis."

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*BY DIANE FARRAR AND BOB LOPEZ*