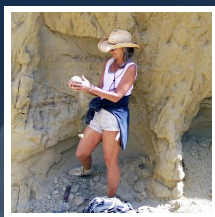


Dinosaur Molecules: The Past Elucidates the Future



Mary Schweitzer
Professor, Biology

CURRENT RESEARCH

Dinosaurs: how the future may, in some ways, lie in the past

Over 99% of all the organisms that have ever lived on our planet are now extinct; the fossil record is the only evidence of their existence. They occupied our same planet, with similar requirements to move and reproduce, respond to gravity, and acquire nutrients, but they were very different from today's familiar life forms. Fossils of these organisms represent evolutionary experiments that have already been conducted. Extinct organisms, including dinosaurs, went through periods of global warming, global cooling, continental shifts, and changes in atmospheric CO₂ far greater than anything the human species has ever seen. How did they survive? How did they change? These questions can only be answered by at looking the fossil record, because that is the only place the data can be found. Dr. Mary Schweitzer, of North Carolina State University, studies how dinosaurs were preserved in the first place, what exactly is preserved, and how the interpretation of small molecules preserved in the bones of these great animals can inform us about how they lived and functioned in their world.

Dr. Schweitzer and her team have challenged 'conventional wisdom.' It was widely assumed that original organics would not persist across geological time, but Dr. Schweitzer has found flexible transparent blood vessels and bone cells that still have molecular features in common with the same tissues in modern counterparts. This calls into question our assumptions about the durability of organic materials, and suggests that maybe, the limitations are not necessarily in the molecules themselves, but in our existing technology to recover, identify, and interpret them. While working to uncover the secrets of the...

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AFFILIATION



North Carolina State University

EDUCATION

- Ph.D., in Biology, 1995 , Montana State University
- Certificate, in Education/Broadfield Science, 1988 , Montana State University
- B.S., in Communicative Disorders, 1977 , Utah State University

AWARDS

- Packard Fellowship, 2006-2011
- Research was ranked 14th in Discover magazine top 100 stories in science, 2010, also 6th in 2005, and 8th in 2009
- 10th Mesozoic Terrestrial Ecosystems, Plenary Lecture
- Introduction to Dinosaurs (MEA 120) was ranked in the top 20 classes of NCSU

RESEARCH AREAS

Environment, Chemical, Ecology

FUNDING REQUEST

Your contributions will support the continued research of award-winning paleontologist Dr. Mary Schweitzer, of North Carolina State University, as she recovers proteins and other biological signals from materials retained in a sedimentary environment from the distant past. Donations will fund the necessary \$60K required for supplies and additional funding will support personnel. Donations of \$1M will allow Dr. Schweitzer and her team to purchase a mass spectrometer that will support continued innovative research. In choosing to donate, you will play a role in understanding vertebrates of our past and present.