Courtesy of Genomic Health, Inc.

Randy SCOTT

Chemistry / Biochemistry

Genomic Health, Inc., Redwood City, Calif.

2011 **SCIENCE in KANSAS** *150 years and counting*

Randy SCOTT current

- Grew up in Augusta. Earned degrees at Emporia State University and at KU.
- Co-founded a life science company to study the human genome and how genes are involved in disease. Genes are sets of instructions, like software codes, that tell our cells how to carry out various functions. Scott studies how genes work together in networks and how they are involved in abnormal processes that lead to diseases like cancer.
- Developed diagnostic tests to analyze gene activity in cancer tissues. The tests predict which treatments might be most helpful; also, what is the risk the cancer might come back.
- Using that information, a treatment routine can be selected especially for that patient.

EXTRA COOL: Named one of the Top 100 private technology companies in North America in 2005.

Courtesy of KU University Relations

Joy WARD

Ecology / Evolutionary Biology

University of Kansas

2011 **SCIENCE in KANSAS** *150 years and counting*

Joy WARD current

- As a researcher at KU, she studies plants that grew during the last ice age--18,000 to 20,000 years ago. Air bubbles trapped in ancient ice core samples show only about half as much carbon dioxide (CO_2) in the air then as there is today. How did plants grow under such low CO_2 levels?
- By studying growth rings and stable isotopes on fossilized wood at California's Rancho La Brea tar pits (where saber tooth cat fossils are found), she was able to tell how trees functioned during this era. Most seemed to be limited in CO_2, much like plants might be limited in water or nutrients today.
- For the future, does this mean that with rising atmospheric CO_2 levels plants will grow bigger? Or faster? Or flower at different times? Ward is looking for answers to these and other questions.

EXTRA COOL: Honored by President Obama in 2010 with a PECASE award, the highest honor that can be awarded a young scientist in the U.S.

Project of the Ad Astra Kansas Initiative www.adastra-ks.org

Courtesy of Kansas State University Photo Services

Anna WHITFIELD

Plant Pathology

Kansas State University

2011 **SCIENCE in KANSAS** *150 years and counting*

Anna WHITFIELD current

- Is an associate professor at KSU who specializes in the study of plant diseases.
- She is studying a plant virus called the tomato spotted wilt virus (TSWV) which can severely harm entire peanut and tobacco crops. It also can affect a dozen kinds of vegetables besides tomatoes and over fifty kinds of flowers. This causes great loss of produce and income for farmers.
- TSWV is spread by tiny insects called thrips. Whitfield is researching how the thrips respond to the virus. This may help in finding solutions to preventing its spread.

EXTRA COOL: Whitfield has received a National Science Foundation CAREER award of $1 million for research. This award is given to scientists early in their career who have shown great promise.

Project of Ad Astra Kansas Initiative www.adastra-ks.org

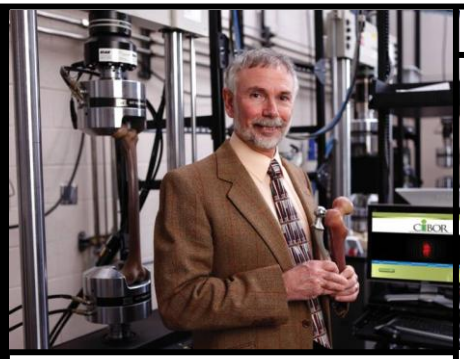

Photo credit Steve Rasmussen

Paul H. WOOLEY

BioMaterials Science

Center of Innovation for Biomaterials in Orthopaedic Research (CIBOR), Wichita

2011 **SCIENCE in KANSAS** *150 years and counting*

Paul H. WOOLEY current

- Working with Wichita State University's National Institute for Aviation Research (NIAR) and Via Christi Orthopaedic Research Institute to develop materials to help the body regrow bone.
- Bone tissue can regrow, but sometimes, after an injury, not all the bone is repairable.
- Wooley and his team have come up with a carbon foam material to put into the areas where the bone is not repairable. The material is light, strong and porous (has tiny holes in it), so bone tissue can grow through and around it. The body is largely made up of carbon, so it easily accepts this foam.
- NIAR is helping because aerospace uses light, strong materials like this. This could be part of a whole new industry for aerospace materials.

EXTRA COOL: Dr. Wooley asks kids interested in aerospace to think about working in this new field using aerospace materials to make medical devices.

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