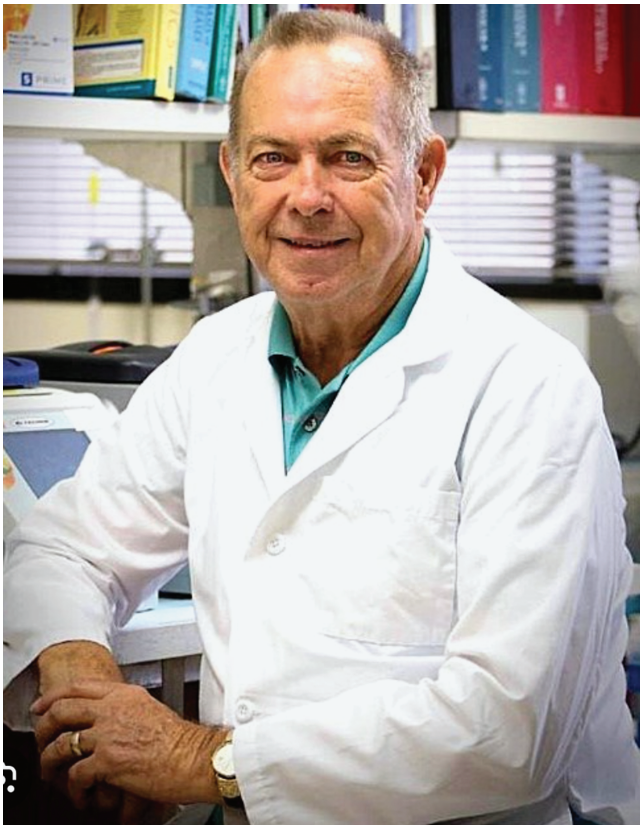


Announcements

The Lone Star Pioneer of Genomics: James E. Womack (March 30, 1941–August 13, 2023)



The global genetics/genomics community, the American Genetic Association (AGA), the Texas A&M University community, the National Academy of Science, countless students, dear friends, and colleagues lost an amazing, compassionate science adventurer, and champion of scientific discovery with the passing of James E. Womack on August 13, 2023, in his hometown of College Station Texas. He was 82 years old.

Jim's scientific contributions spanned nearly 50 years, from the earliest days of comparative mammalian genetics to the sequencing of the cattle genome and beyond. Of his many scientific contributions, he was widely known for developing the first comparative synteny map of the cattle genome which helped to anchor linkage groups to their proper chromosomes. His seminal paper that launched the

field of comparative agricultural genetics was published in 1986 (Womack and Moll 1986). He frequently joined with his colleagues to analyze gene maps in different species to co-author multiple studies of mammalian comparative genomics, which cemented the now well-established paradigm of conserved synteny among the chromosomes of the mammalian radiation (O'Brien et al. 1993, 1999; Murphy et al. 2005). These reports opened the door to the explosion in comparative genomics among domestic animals and related mammalian species.

Jim was appointed coordinator for the USDA Cattle Genome Research Program and helped launch the NIH/USDA Bovine Sequencing Initiative with Richard Gibbs of Baylor College of Medicine, which culminated in the high-resolution analysis and application for the Bovine complete genome (Elsik et al. 2009). His work in cattle quickly gained national attention, including the popular media. In 1984, Charles Osgood noted on CBS News:

.... A scientist at Texas A&M says humans and cows are a perfect match in gene traits and that cows can be used in experimental research. That may seem like a good idea in Texas, but elsewhere mice may seem easier to get into those little cages.

Jim developed a stronger fondness for comparative genetics, a discipline meant to use evolutionary insight as an approach to detail and understand human gene organization. In 1977 he accepted an offer to join the faculty of the Department of Veterinary Pathobiology at Texas A&M University (TAMU). He decided to re-focus his approach and initiate comprehensive gene mapping and comparative analysis of non-traditional species (such as dogs, horses, pigs, and monkeys). In a memorable conversation over which species he might select just before his move to TAMU, O'Brien queried Jim.

.. so where did you say you were moving to?

The cattle industry acquired its prescient genetics leader and pioneer at that moment.

Later in 1986, Jim Womack was actually at the table in a Bethesda, Maryland saloon the evening the word "Genomics"

was first uttered. Four scientists (Jim, Tom Roderick, Stephen O'Brien, and Tom Shows) took a break from the Human Genome Mapping workshop. They were discussing a name for a new human genetics scientific journal to be edited by Victor McKusick and Frank Ruddle, launched by Academic Press Publishers. One obvious name was "Genome," but Tom Shows mentioned that the name "Genome" was co-opted already by the Canadian Journal of Genetics and Cytogenetics, which had just changed its name to "Genome." After several more bad guesses, Tom Roderick, a distinguished mouse geneticist from The Jackson Laboratory, said quietly . . . "How about 'Genomics?'" It sounded strange at first, but with a few more beers, it improved. The new Journal and the new scientific discipline had an original, novel name, "Genomics."

Jim Womack published over 380 peer-reviewed scientific publications and several hundred abstracts as well as other publications. Throughout his career, Jim taught both undergraduate and graduate classes and was an outstanding mentor. He trained over 50 graduate students and dozens of pre- and postdoctoral students and residents. He and his wife would host countless visitors and scientists from many countries across the globe. Jim was invigorated by his teaching of undergraduate students. He once said in an interview,

These are juniors and seniors, and most were applying to medical schools, veterinary colleges, and graduate schools. I write a lot of letters, and then they stay in touch with me. I enjoy that. My students kind of become like my children.

His influence extended well beyond cattle and agriculture. One of his favorite sayings at the annual Jackson Laboratory Human Genetics Course was, "Humans are excellent models for genetic analysis of other animals."

James (Jim) E. Womack was born March 30, 1941, to Charles E. and Eva Mae Womack in Anson Texas. An All-State basketball star at Hawley High School, Jim enrolled in Abilene Christian College and led the ACU Wildcats to NCAA postseason tournaments. He married his college sweetheart Raby Beakley in 1963. Jim was elected to the ACU Wildcat Sports Hall of Fame in 2010 and the "Jim Womack Award" is now given annually to a former ACU student-athlete who, like Jim, excelled in athletics and academics.

Jim received a NASA Fellowship at Oregon State University, where he studied mouse genetics under Dr. Ralph Bogart in the Department of Animal Sciences. He returned to a short stint at ACU, then moved to Jackson Labs in Bar Harbor, Maine, before joining TAMU faculty in 1977. He was promoted to the W. P. Luce Chair professorship in 1985.

Jim's dedication to trainees was recognized by a 2009 Student-Led Award for Teaching Excellence by the Texas A&M University System and in 2010 by the Texas A&M University Faculty Distinguished Achievement Award for Graduate Student Mentoring. Jim and Raby established the Raby and Jim Womack Endowed Basketball Scholarship at ACU. Upon his retirement in 2018, his former graduate students honored him by establishing The James Womack Endowed Fund in Animal Genomics at Texas A&M.

Jim's transformative research was recognized through numerous awards. These include the 1993 CIBA Prize for Research in Animal Health (Basel, Switzerland), and his 1999 election to the National Academy of Sciences, and a Fellow of the American Association for the Advancement of

Science. He was awarded the 2001 Wolf Prize in Agriculture (Israel), which is considered by many to be the Nobel Prize within the field of agriculture. Jim was named a University Distinguished Professor at Texas A&M in 2001 and recognized with the 1996 Outstanding Texas Geneticist Award from the Texas Genetics Society, 2006 Distinguished Service Award from the Texas Genetics Society, 2006 Outstanding Alumnus of the Year by Abilene Christian University, the 2008 George Bush Award for Excellence in International Research by Texas A&M, a 2013 Oregon State University Alumni Fellow, and the 2016 American Association of Veterinary Medical Colleges (AAVMC) Excellence in Research Award.

Jim was also widely appreciated for his outstanding service to the scientific community. He served as President of the Texas Genetics Society (1989), the first Coordinator of the USDA-NRSP8 Bovine Genome Program (1993 to 2008); and President of the International Society for Animal Genetics (2000 to 2006). He served on the editorial boards for Genomics, Biochemical Genetics, Animal Genetics, Mammalian Genome, Genome Research, and Animal Biotechnology.

Of special note are Jim's sustained contributions to the American Genetic Association (AGA). Jim served as President (1985), Executive Vice President (1996 to 2003), and as an Associate Editor of the *Journal of Heredity* for 26 years (1987 to 2013). In 1987, he joined Michael Clegg in planning the restructuring of the *Journal of Heredity* and the AGA's management. Today's healthy financial endowment for the AGA grew out of Womack's and Clegg's visionary leadership. Only a handful of AGA members have matched Jim's length and breadth of service to the society since its inception in 1903 (Crow 2004).

By his side through this journey was Jim's wife of 60 years, Raby, who had a 30-year teaching career in College Station. Jim frequently said, "She's a whole lot smarter than me, I have been blessed." Jim went into partial retirement in 2017 to help care for Raby, but he remained active at Texas A&M, where he continued to help colleagues, teach genetics to more than 80 undergraduate students each year, and navigate an active research program.

Jim would be quick to say his greatest love was people; his family and friends, and his students. The Womacks had two children, Wendy and Jimmy (now deceased), and two grandsons, Quaid Faltys and James Hamlin Hill, who both shared Jim's love of fly-fishing. Jim and his wife Raby spent much of their recent free time on their ranch outside of College Station, where they raised cattle and horses, looked after their dogs, and fished for largemouth bass with family and friends.

Dr. Jim Womack was truly a giant in mammalian genetics and genomics. Through his leadership, he ushered in the era of cattle genomics. In 2019, he wrote an autobiographical piece by invitation from the *Annual Review of Animal Biosciences* titled "Mapping Genes Is Good for You" (Womack 2019). He wrote:

I have had the pleasure of working with outstanding graduate students, postdocs, and colleagues to contribute my small part to a discipline that has evolved from a few individuals mapping an orphan genome to a discipline underlying a revolution in animal breeding.

We and his many colleagues, former students, and dear friends will miss him in countless ways. The world is a better place because of his inspiration and support to so many.

Godspeed Jim Womack—there will never be another you.

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