In Memoriam
Teri Lear, PhD
October 11, 1951–May 14, 2016

On May 14, 2016, we lost Dr. Teri Lear—a dedicated, inspiring, and beloved member of the animal cytogenetics and genomics community. She passed at the age of 65, following seven incredibly brave years of battle with cancer.

Teri Lear was born in Louisville, Kentucky. She earned a bachelor's degree in biology at Indiana University Southeast and a master's degree in cytogenetics at the University of Louisville. After becoming a PhD in genetics at the University of Kentucky, she joined their Faculty of Veterinary Science, where she worked until the very end.

It was probably the horse-enriched atmosphere of Kentucky that got Teri into a lifelong love affair with horses. She had horses of her own, of which Bisquit, a buckskin Saddlebred, was with her for the last 26 years and died just a year before Teri—a personal tragedy that certainly affected Teri's fight for her health.

Horse-driven was also Teri's professional life. Inspired by these beautiful creatures, she became one of the world's leading experts in equine cytogenetics. She was one of the key players in making equine cytogenetics into what it is today. In 1997, Teri Lear was at the heart of developing the International System for Cytogenetic Nomenclature of the Horse (ISCNH 1997). This work essentially established the foundation for equine clinical cytogenetics, physical gene mapping, and genome sequencing. In the 1990s, Teri was at the forefront of the inception of an innovative molecular cytogenetics technique—fluorescence *in situ* hybridization (FISH)—in animal cytogenetics, thus facilitating the merging of cytogenetics with genomics. This was also the time when comparative chromosome painting, or Zoo-FISH, revolutionized animal genomics. Again, Teri was among the first to apply Zoo-FISH in horses, showing that horse chromosome 3 shares evolutionary homology (and likely the same genes) with human chromosomes 4 and 16. In those times, when almost no genes were mapped in the horse genome, this was an outstanding breakthrough. As a logical continuation, in the following two decades Teri was among the leaders of cytogenetic mapping of the horse genome. The work culminated with the release of the horse reference genome sequence assembly in 2009.

However, Teri's professional interests were much broader than horses. Years of deep friendship and collaboration with researchers at the San Diego Zoo Institute for Conservation Research led to clinical cytogenetics studies in lowland gorillas and bonobos, and to comparative studies of the karyotypes of horses, asses, onagers, and zebras. Teri was involved in advanced spectral karyotyping of baboons and held an NIH grant on the study of the genome and chromosomes of white-throated sparrows—although perhaps the most exotic of her cytogenetic adventures was karyotyping equine ascarid parasites, showing that *Parascaris equorum* and *P. univalens* can be unequivocally identified by karyotyping.

During all these years, in parallel with her work in equine genomics, Teri daily provided the most professional service and counselling in clinical cytogenetics for horse owners, breeders, and veterinarians. Notably, the majority of balanced autosomal translocations known in horses were discovered and characterized by Teri Lear. Those who are familiar with cytogenetics know well that producing quality chromosome preparations and G-banded karyotypes is more a piece of art than just a laboratory procedure. No doubt, Teri Lear was a true chromosome artist—a compliment any cytogeneticist would like to earn.

And this is not all. Perhaps Teri's most enduring and valuable contribution, although not reflected in publications or scientific reports, was building bridges—bridges between researchers and veterinarians, horse owners and animal lovers. Teri's scientific thinking was beautifully combined with her extraordinary personality—empathetic, caring, thoughtful, and patient, blended with quiet, friendly humor. She could explain complex science in a simple way to a lay audience, earning the trust and respect of people who were far from science but close to animals. Another piece of art!

Teri Lear left an invaluable legacy by authoring dozens of papers on animal cytogenetics and genomics, mentoring and inspiring students, and being a dear colleague and friend for so many. Even while battling cancer, Teri continued working, publishing, communicating, guiding students, encouraging, and advising colleagues. Most importantly, she never failed to maintain her unique blend of quiet humor and optimism. Teri Lear is deeply missed by all who had the privilege to know her, and it is our responsibility to carry on her legacy in chromosome art and in the art of living.

■ Terje Raudsepp