

Is Canine Medicine Ready for Stem Cell Therapy (Cytotherapeutics)?

Moderator:

Dr. Butherus
Chair, Grants Committee
CHF

Panelists:

Dr. Jaime Modiano
Dr. Mark Oyama
Dr. Rick Vulliet

A participant thanked the panelists for “giving us hope” and asked about the correlation between levels of insulin-like growth factor (IGF) with cancer.

“If the answers were easy, a lot of smart people who have been working on the problem would have already found them,” Dr. Modiano said. IGF is not simplistic: a big dog with IGF does not automatically get cancer, and IGF may have nothing to do with cancer. One study of IGF inhibitors showed that even though the drug worked biologically, it did not work therapeutically, and side effects were unacceptable. This question presents an opportunity for further research.

Another participant asked the panel to address information suggesting that rates of osteosarcoma are high in animals that have been sterilized.

Dr. Modiano said that one 2003 study based on a survey of Rottweiler owners found that dogs neutered before the age of six months seemed to have a significant increase in bone cancer later in life. However, other researchers have tried without success to reproduce the data in clinical and university studies. Dr. Modiano recommended that pet owners consider all the reasons their dog should or should not be spayed or neutered, and base their decision on that rather than on fear of cancer.

A participant asked about genetic markers for osteosarcoma and the efficacy of so-called “organic” or “natural” treatments.

Most drugs are derived or modified from plant compounds, and doctors have exploited some of those poisons to kill cancer cells, Dr. Modiano said. However, to kill cancer, most of these compounds also kill some healthy cells. Noting, “Socrates died from drinking an all-natural herbal solution,” he said dog owners must be careful of “snake oil” and use caution when assessing products that are promoted using the terms “organic” or “natural.”

Dr. Modiano said researchers are looking for genetic markers for bone marrow cancers, but have yet to prove that certain markers are more associated than others with those cancers.

A participant asked about spontaneous remissions, noting that while they are rare they do occur, and enquired about the future of cancer vaccines.

Dr. Vulliet said he feels researchers will solve the mysteries of stem cells and cancer at the same time. "When we know why stem cells differentiate, we'll know why cancer doesn't." The body's natural immune system monitors the body and kills problematic cells before they can become cancerous; for this reason, Dr. Vulliet said, cancer could be described as a failure of the body's surveillance system. Stem cells could promote better immune responses and help the body to renew itself.

Another participant asked the panelists how they decide where to focus their research, and how individuals and clubs can determine where to direct their contributions.

Dr. Oyama said that each technology builds on the others, working in different but complementary ways, and suggested that donors consider researchers' study information to see which are the nearest to paying off. Dr. Vulliet said that two of every 10 grants he reads should not be funded, and at least five seem worth funding; however, usually only one or two can be funded.

A participant said that several dogs in one line in her breed club have come down with DCM, and that "one stud is obviously a carrier." Dr. Modiano suggested that she talk to Dr. Jerold Bell regarding breeding strategies for dogs with heritable diseases.

Dr. Vulliet noted that the current allocation of research funds is heavily weighted towards prevention, with much smaller percentages allocated to cures and palliative care. "We don't know [whether the balance is right], but we're thinking and would like your input." Since insufficient funds are available for research, "we must triage." He said researchers are trying to "enlarge the pie instead of re-dividing it" by seeking out new sources for grant money.

Dr. Modiano said dog owners could help research efforts by sending tissue samples and checking the box on the form allowing them to be shared. This will allow researchers to develop large sample sets for different studies.