et al. (65) Soda et al. (66) and Noonan et al. (67) discuss animal models for colorectal cancer, breast cancer, non-small cell lung cancer, and melanoma, respectively.

Similarly, animal models for certain infections are available. Animal models for infectious diseases include the woodchuck (68) which is the animal model of choice for hepatitis B virus, the chimpanzee (69) which is an appropriate large-animal model for hepatitis C virus (HCV), and the armadillo (70) which is the animal model for *Mycobacterium leprae*, the cause of leprosy (Hansen's disease). A suitable small-animal model for hepatitis C infections has not yet been found.

In proposing and using animal models for disorders that have an immune component, it is useful to be aware of the similarities (and differences) between the mouse immune system and the human immune system. Mestas and Hughes (71) outline some of these similarities and differences. Researchers conducting animal models on diseases with an immune component, that is, cancer, autoimmune diseases, and inflammatory disorders, need to be aware of similarities and differences in the immune systems between their animal and humans. For example, comparisons between mouse and human dendritic cells (72) T cells (73) B cells (74) NK cells (75) macrophages (76) eosinophils (77) and toll-like receptors (TLRs) (78) are available.

[65] Kuperwasser C, Dessain S, Bierbaum BE, et al. A mouse model of human breast cancer metastasis to human bone. *Cancer Res*. 2005;65:6130–6138.

[66] Soda M, Takada S, Takeuchi K, et al. A mouse model for EML4-ALK-positive lung cancer. *Proc Natl Acad Sci USA*. 2008;105:19893–19897.

[67] Noonan FP, Dudek J, Merlino G, De Fabo EC. Animal models of melanoma: an HGF/SF transgenic mouse model may facilitate experimental access to UV initiating events. *Pigment Cell Res* 2003;16:16–25.

[68] Menne S, Cote PJ. The woodchuck as an animal model for pathogenesis and therapy of chronic hepatitis B virus infection. *World J Gastroenterol*. 2007;13:104–124.

[69] Bukh J, Thimme R, Meunier JC, et al. Previously infected chimpanzees are not consistently protected against reinfection or persistent infection after reexposure to the identical hepatitis C virus strain. *J Virol*. 2008;82:8183–8195.

[70] Hamilton HK, Levis WR, Martiniuk F, Cabrera A, Wolf J. The role of the armadillo and sooty mangabey monkey in human leprosy. *Int J Dermatol*. 2008;47:545–550.

[71] Mestas J, Hughes CC. Of mice and not men: differences between mouse and human immunology. *J Immunol*. 2004;172:2731–2738.

[72] Boonstra A, Asselin-Paturel C, Gilliet M, et al. Flexibility of mouse classical and plasmacytoid-derived dendritic cells in directing T helper type 1 and 2 cell development: dependency on antigen dose and differential toll-like receptor ligation. *J Exp Med*. 2003;197:101–109.

[73] Walzer T, Arpin C, Beloeil L, Marvel J. Differential in vivo persistence of two subsets of memory phenotype CD8 T cells defined by CD44 and CD122 expression levels. *J Immunol*. 2002;168:2704–2711.

[74] Frasca D, Landin AM, Riley RL, Blomberg BB. Mechanisms for decreased function of B cells in aged mice and humans. *J Immunol*. 2008;180:2741–2746.

[75] Ehrlich LI, Ogasawara K, Hamerman JA, et al. Engagement of NKG2D by cognate ligand or antibody alone is insufficient to mediate costimulation of human and mouse CD8+ T cells. *J Immunol*. 2005;174:1922–1931.

[76] Sunderkötter C, Nikolic T, Dillon MJ, et al. Subpopulations of mouse blood monocytes differ in maturation stage and inflammatory response. *J Immunol*. 2004;172:4410–4417.

[77] Dyer KD, Percopo CM, Xie Z, Yang Z, et al. Mouse and human eosinophils degranulate in response to platelet-activating factor (PAF) and lysoPAF via a PAF-receptor-independent mechanism: evidence for a novel receptor. *J Immunol*. 2010;184:6327–6334.

[78] Janssens S, Beyaert R. Role of Toll-like receptors in pathogen recognition. *Clin Microbiol Rev*. 2003;16:637–646.