

Fibrosarcomas Associated with Passive Integrated Transponder Implants

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It has been reported that passive integrated transponder implants used for identification cause little or no tissue reaction in mice after 2 yr or in rats after 1 yr. In a 104-week dietary study conducted in 400 male and 400 female B6C3F1/CrIBR VAF/Plus mice, subcutaneous tumors associated with the implanted transponder were observed in 16 animals (2%) between weeks 79 and 105. All tumors were observed in the dorsal shoulder region at or near the implantation site. Some masses became large enough to inhibit the animal's access to its feed jar. At necropsy, the tumors were firm and thinly encapsulated and were attached to the implant or partially or totally encased the implant. Although most were loosely attached to the underlying subcutis, some were firmly attached to or invading into the adjacent skeletal muscle. Microscopically, all tumors were composed of spindle-shaped cells densely packed in interlacing bundles. These neoplasms, diagnosed as fibrosarcomas, were remarkably similar in appearance, having pleomorphic fusiform cells with large nuclei and prominent nucleoli. Mitotic figures were common and were often atypical. Necrosis and hemorrhage with variable amounts of inflammation were common in the larger tumors. Some of the neoplasms were somewhat circumscribed, whereas others were locally invasive into adjacent skeletal muscle. Two animals had metastases to regional lymph nodes or to the lungs. Fibrosarcomas were also seen in the skin or skeletal muscle of four other animals, but these were not found in the vicinity of the implant. The tumors associated with the implants were found in control and treated animals and were considered unrelated to the test material. We have identified these implant-associated tumors only in this B6C3F1/CrIBR strain of mice and not in any studies using the CrI:CD-1 strain. Thus, there may be

a strain susceptibility difference between strains of mice. Another laboratory has also recently reported the occurrence of implant-associated tumors in mice (1); however, the overall incidence was low (<1%), and the strain was not identified in the abstract.

1. Johnson KA (1996). Foreign-body tumorigenesis: Sarcomas induced in mice by subcutaneously implanted transponders. *Vet. Pathol.* 33(5): 619 (abstract 198).