

## Controlled drug delivery in animal health

RICHARD W. KORSMEYER

*Technology Assessment, Pfizer Central Research, Eastern Point Road, Groton CT 06340, USA*

The concept of controlling the effect of a drug by controlling its delivery to the body has been in existence for many years. However, the last decade has seen a notable increase in the diversity of technologies available and an explosion in the number of pharmaceutical products which utilize some form of controlled delivery. Companies providing drug delivery technology now constitute an industry unto themselves, with most of the growth being driven by the market for human health care products. Although human health applications have dominated recent discourse about controlled release technology, many concepts were first pioneered in veterinary products, and many new opportunities still exist to create value with innovative drug delivery products in the animal health market.

Although the basic scientific principles for designing drug delivery systems are the same no matter what the application, there are notable differences in the requirements for human and animal health products which lead to differences in the technology which can be considered for each. These differences include cost considerations, the acceptability of dosage forms like collar and ear tags for animals, and the simple fact that animals do not take their own medications. All these con-

siderations have significant implications for dosage form design.

Within the field of veterinary drug delivery, the target populations are far more diverse as a collection than humans. Dosage forms must be designed for animals of widely differing size among various species. Products for livestock must be rigorously cost-effective in the context of production, including the cost of the labour to administer them. On the other hand, products for companion animals must take into account the animal's status as a member of a human family. Wildlife are not often thought of as patients, yet occasions to treat them do arise.

Therapeutic categories overlap but do not coincide with those for human health. Antibiotics, anti-inflammatories, antipruritics, etc, are all equally important to animal health. Anti-parasitics are more widely used in animals, but agents such as growth promoters find radically different use in the veterinary area.

This talk will discuss the considerations above and survey applications of controlled release technology to animal health. Implications for future products will be examined.