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## Fearing fear itself

Pheromone signaling is probably the oldest form of communication between animals of the same species. Many animals emit alarm pheromones to warn conspecifics of approaching danger. Hauser *et al.* carried out a study to qualitatively identify the chemical substances that make up alarm pheromones emitted by the rat. They placed rats in a specially designed chamber and exposed them to aversive tactile, visual and acoustic stimuli over the course of a few days. The researchers found that stressed and fear-conditioned rats emitted several substances that are known to function as alarm pheromones in insects. When the researchers exposed a group of unstressed control rats to these same substances, the rats had a distinct behavioral fear response.

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## Optimizing euthanasia

Many laboratories use carbon dioxide asphyxiation to euthanize animals of various species. Fitzhugh *et al.* sought to establish an optimal procedure for carbon dioxide asphyxiation of the domestic ferret. They euthanized ferrets by placing them in cages that were either prefilled with carbon dioxide or gradually filled at various displacement rates. Prefilling the cage or filling it at a rate of 50% volume per min seemed a more rapid and efficient method of euthanasia than did filling the cage at slower displacement rates. Subjective evaluation of ferret behavior suggested that prefilling the euthanasia cage caused the least stress to ferrets. [See page 81](#)

## Pain relief for embryo transfer

Though rodent embryo transfer is a minimally invasive procedure, it is classified as major survival surgery and is likely to cause pain and distress. Many researchers, however, hesitate to administer analgesia in these situations, primarily out of concern that an analgesic will be detrimental to embryo implantation. Krueger *et al.* administered buprenorphine to mice that underwent embryo transfer. In mice treated with the analgesic, the number of viable implanted embryos was typically equal to or greater than that in untreated mice. Mice did not seem otherwise affected by the analgesia. [See page 87](#)