

Pheromone cuts down a male's flirting time

A male salamander doesn't exactly get his date tipsy to speed courtship to its standard conclusion.

However, there's just something about the scent of his chin that does the same job, and now researchers say they know what that enticing something is.

Earlier work suggested that a gland that appears under the chin of a male Jordan's salamander during breeding season produces a chemical message, or pheromone, explains Stephanie M. Rollmann of the University of Chicago. Entomologists have identified perhaps a thousand insect pheromones, but vertebrate chemistry has proved harder. Counts differ, but the total of identified vertebrate pheromones is still struggling toward a dozen.

Rollmann and her colleagues propose a protein from the salamander's chin gland as the latest addition to the list. In the Sept. 17 *SCIENCE*, they report tracking down the scent's active component and sequencing its gene.

That sequence, they argue, resembles those for interleukin-6 cytokines, a diverse family of compounds regulating cell growth. "I was surprised," Rollmann says. This is the first hint of cytokines as pheromones.

The effect of the chemical also is "quite novel," comments John G. Vandenberg of North Carolina State University in Raleigh. Mice, gerbils, black-tailed deer, and some antelopes—among other animals—use scents in courtship, usually as attractants, he says. However, he can't think of another vertebrate pheromone that influences the amount of flirting.

To demonstrate the effect, Rollmann and her colleagues purified a protein from the chin gland. They then removed chin glands of 11 male salamanders.

These males still courted normally, luring a female to perform an amphibian waltz in which she straddles his tail and the pair waddles forward. During this duet, lasting up to about an hour, "he'll curl back and slap his gland across the openings to her nose," Rollmann says. The pheromone molecule is too heavy to waft through the air, so these little love pats normally deliver the protein.

When Rollmann dabbed females with the protein, nine pairs spent less time tail straddling than they did when Rollmann used a saline solution as a control. On average, she observed about a 15 percent reduction in flirting time.

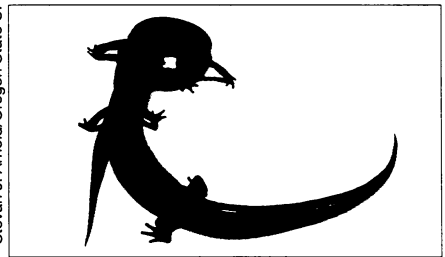
"I'd really like to know how it increases the mating success of a male in the wild," remarks Ring T. Cardé of the University of California, Riverside. Cardé, who studies moth pheromones, acknowledges that tracking pheromone effects in vertebrates is "much, much harder" than in insects.

Bets Rasmussen of the Oregon Graduate Institute in Beaverton called the work

"an exceptional study." The compound itself intrigues her, she says, because she sees growing evidence for proteins playing a role in vertebrate pheromone systems.

Vertebrates send and receive pheromones via many routes. The pheromone that Rasmussen discovered, which also turns out to be a component of many moth pheromones, appears in a female elephant's urine. Male red-sided garter snakes pick up a sexual signal when they flick their tongues across a female's skin. The other known amphibian pheromone, from an aquatic-breeding salamander, disperses in water.

Stevan J. Arnold/Oregon State U.



A male salamander brushes a pheromone from his chin onto a female, who's expressing interest by straddling his tail.

Although it's too early to generalize much about vertebrate pheromones, the field "is in a very dynamic state right now," says Rasmussen. —S. Milius

Mentally ill showcase decision abilities

A federal panel issued a report last year that criticized the ways that scientists inform patients with mental disorders about the risks and benefits of participating in research. The panel, the National Bioethics Advisory Commission (NBAC), called for creation of a government committee to determine whether certain proposed studies pose unacceptable risks to psychiatric patients.

The panel's report evoked the wrath of many mental-health clinicians and researchers. They contend, for example, that NBAC unfairly assumed that mentally ill people lack the decision-making capacity of medical patients.

Two new studies, published in the September *AMERICAN JOURNAL OF PSYCHIATRY*, underscore the judgmental insight and subtlety of many people diagnosed with severe mental disorders. Mental-health professionals view the studies as evidence of NBAC's misjudgment.

One investigation finds that women who have major depression of at least moderate intensity comprehend the pros and cons of taking part in psychotherapy research. The other project indicates that about half of people involuntarily committed to a psychiatric hospital later agree that they needed the treatment, even if they don't feel grateful for the experience.

Much remains to be done to ensure the protection of research participants, comments psychiatrist William T. Carpenter Jr. of the Maryland Psychiatric Research Center in Baltimore in the journal issue. However, he calls media reports of improper consent procedures in psychiatric investigations (SN: 3/19/94, p. 188) "ill-informed and unfair" and considers the NBAC conclusions unjustified.

In the first study, directed by psychiatrist Paul S. Appelbaum of the University of Massachusetts Medical School in Worcester, 26 women taking part in an evaluation of psychotherapy for depression completed an interview that measures a person's competence to consent to treatment (SN: 1/7/95, p. 8). This 15-to-

20-minute evaluation gauges a person's understanding of the project and its procedures, appreciation of the effects of research participation on one's own situation, and ability to compare participation with other treatment options.

Nearly all the women, who averaged 39 years old, displayed sound understanding of the study. In only three cases did substantial confusion arise, mainly concerning random assignment to different psychotherapy schedules.

Even the most depressed women understood the range of issues involved in the study, the researchers say. Further work should examine decision-making competence among people who suffer from depression so severe that it requires hospitalization, they add.

Although involuntary psychiatric hospitalization sparks legal and moral controversy, many people coerced into treatment later say that they needed such care, according to psychologist William Gardner of the University of Pittsburgh School of Medicine and his colleagues.

Gardner's group interviewed 267 patients within 2 days of their admission to a psychiatric hospital and again 1 to 2 months after discharge. Most participants spent no more than 5 days in the hospital. They primarily received diagnoses of mood and substance-abuse disorders.

Of 64 patients who said soon after admission that they didn't need hospitalization, 33 later believed that they had needed it. In contrast, only 9 of 198 patients who said early on that they needed hospitalization later recanted.

Still, coerced patients feel offended by their hospitalization, even if they say that they needed it. This reaction parallels that of anyone who suffers the indignity that accompanies loss of independence, the researchers contend.

It's unclear how many coerced patients who months later still maintain that they didn't need treatment were hospitalized due to clinical error, say the researchers. —B. Bower