Female phase fazer: New birth control?

A synthetic hormone that eventually could be administered as infrequently as once a month shows contraceptive potential, researchers report. A small group of women took the chemical for the first three days of their menstrual flow. In all subjects, the synthetic hormone extended the first of two menstrual cycle phases and correspondingly shortened the other menstrual phase. Because a shortened second phase is associated with a uterus unprepared for implantation of an egg, the chemical that was studied first in five then in an additional twelve women "may prove to be a practical and novel approach to fertility control," report Samuel S. C. Yen of the University of California at San Diego and colleagues in the Jan. 8 SCIENCE.

Yen — along with Katharine Sheehan of San Diego Planned Parenthood and Robert Casper of Dalhousie University in Nova Scotia — studied a synthetic and super potent version of the natural hormone called "luteinizing hormone-releasing factor" (LRF). In the body, natural LRF is a hypothalamus-secreted hormone responsible for doing just what its name implies — releasing the luteinizing hormone. This latter hormone — produced and secreted by the pituitary gland — is in turn responsible for the release of an egg. There is a mid-menstrual cycle surge of this luteinizing hormone that marks the beginning of the second, or luteal, phase.

When synthetic LRF, called "LRF agonist," was administered to the test subjects, Yen and colleagues believe the following happened: First, the pituitary gland was overstimulated. It produced much more follicle-stimulating hormone (FSH) — which is responsible for the development of the egg-containing ovarium follicle — than usual. But the pituitary gland quickly ran out of steam and began to produce much less FSH than normal. As a result, the first, or follicular, menstrual cycle phase was extended from 14 to about 19 days. Eventually the surge of luteinizing hormone that marks the beginning of the luteal phase came to pass. But then there were only 9 days left in the cycle, so this phase was necessarily shortened. Yen and colleagues believe that compressing the events of the luteal phase in such a fashion results in the ovum reaching the uterus before it has been adequately prepared hormonally to receive and nurture a fertilized egg. The researchers therefore believe that the LRF agonist could circumvent implantation.

Should the contraceptive potential of LRF agonist be proved (the trials with the 17 women confirmed it only as a luteal-phase shortener), Yen says it would have some advantages over the currently popular birth control pills — estrogen-progesterone mixes that are taken daily to prevent ovulation. Because it would be taken less often and because it would act on a more precise target, the pituitary gland, LRF agonist should have fewer side effects, he says.

But Barbara Seaman, author of *The Doctor's Case Against The Pill* (1980, Doubleday/Dolphin), told SCIENCE NEWS that "nothing hormonal that interferes with the menstrual cycle will ever be fully safe" — especially for women who intend to bear children. Yen and colleagues report, however, that they plan large-scale clinical trials to confirm that their agonist's effects are reversible after extended use.

—L. Garmon

Former NAS President Philip Handler dies

Philip Handler, former two-term president of the National Academy of Sciences, died at the New England Deaconess Hospital in Boston on Dec. 29 at the age of 64, following four months of treatment for lymphoma. Handler, who gained a reputation both as a biochemist and a leader of the American scientific community, retired from his post as 18th president of the NAS in June 1981. He had planned to return to teaching at Duke University where he'd spent 30 years before coming to Washington, D. C. (SN: 11/8/80, p. 292).

Handler, a biochemist who assumed leadership of the NAS in 1969, published more than 200 papers in professional journals. His research focused on human metabolism and included discovery of the underlying causes of pellagra, a vitamin B deficiency disease, and nicotinic acid deficiency.

As president of the Academy, Handler strengthened the organization by expanding and restructuring its principal body for federally funded studies, the National Research Council. He also served on several presidential commissions.

In October 1981, Handler was awarded the National Medal of Science. At a bedside ceremony attended by presidential science adviser George A. Keyworth II, he was presented with a citation from President Reagan "for his outstanding contributions to biochemical research, resulting in significant contributions to mankind ... and for his national leadership in furthering the state of American science."

In recent years, however, Handler was perhaps even better known for his outspoken defense of human rights. In particular, he protested — on behalf of the Academy and all U. S. scientists — the exile of Soviet physicist Andrei Sakharov in early 1980, warning that "this blatantly punitive act against Sakharov can only be regarded as a challenge to further cooperation and an act of deliberate ill will" (SN: 2/9/80, p. 84).

—L. Tangley

Saturn moon maps: Voyager 2 too

Gold, spices and cannibalistic natives may have captured the headlines back home, but one of the most important tasks of early explorers was the detailed mapping of where they had been. A safe harbor, a pass through otherwise impenetrable mountains, and the overall lay of the land — all vital to those who would follow, clinging to such fragile scraps as the summarized knowledge of some alien terrain. At the U. S. Geological Survey in Flagstaff, Ariz., Ray Batson's Branch of Astrogeologic Studies maps the most alien terrain of all: the surfaces of other worlds.

The most recent additions to the extraterrestrial data bank have been the moons of Saturn, photographed in November 1980 and August 1981 by the two Voyager spacecraft. As was done with the earlier Voyager visits to Jupiter's Galilean satellites, the Saturnian moons are mapped by cartographic artists working freehand, with airbrushes, directly from the spacecraft photos, the only data available about the exotic landscapes.

For many researchers, the maps are the bottom line, designed to preserve a record of surface features free of misleading shadows (except where deliberately provided to indicate topographic relief), camera distortions and eye-fooling reflectivity tricks of poorly calibrated materials. To avoid biasing maps that may have to suffice for decades, the astrocartographers draw no details more sharply than the photos clearly confirm, and omit completely regions for which the imagery is too blurry.

Because Voyager 1 revealed such startling details of Saturn's rings, many of Voyager 2's photo opportunities were reassigned to the rings as well, eliminating many satellite photos that might have aided the mapping effort. As a result, some of the Voyager 1 preliminary maps are not substantially improved with the addition of Voyager 2's data. Other satellites, however, particularly Iapetus and Enceladus, did not get a close look until Voyager 2 came by. Six maps have resulted from the combined photo-file, and all will appear in this and forthcoming issues of SCIENCE NEWS. (The Voyager 1-only maps are in SN Vol. 119; pp. 108, 138, 172 and 204.)

Beginning the series in this issue (see p. 26) is Iapetus, one of whose faces is so dark and the other so bright that the 17th-century French astronomer Cassini, who discovered it, was at first puzzled that he could see it only when it was moving around Saturn away from him, not when it was approaching. The approaching, or leading hemisphere, he correctly surmised, was as different from the trailing side as, well, night and day. The reason, however, is still unresolved.

Next: Enceladus. *—J. Eberhart*