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'Exciting' discovery offers new treatment possibilities

By David Williamson

Scientists at Duke have succeeded in identifying and isolating a protein enzyme that they believe plays a major role in the body's ability to deal with cell damage.

The researchers, who called the discovery "very exciting," said it may offer "a whole new strategy" for treating inflammatory diseases such as psoriasis, in which too many white blood cells accumulate in the outer layer of the skin.

Dr. Gerald Lazarus, chief of the Division of Dermatology, and Drs. Charlotte Thomas and Fred Yost Jr. conducted the experiments.

In an interview, Lazarus explained that when human tissue has been damaged, white blood cells known as polymorphonuclear leukocytes are attracted to the injury to clear away dead cells and other biological debris.

Under normal circumstances, the white cell accumulation is a healthy response to tissue damage, but when too many of them gather, as in psoriasis, a patient can develop massive, painful and disfiguring skin lesions.

The scientist said he and his colleagues theorized that the damaged tissue must be releasing or activating a chemical substance that breaks up certain

"complement" proteins, which in turn attract the white cells.

Link with enzyme

Using a variety of human cells, the researchers were able to purify an enzyme that causes a massive accumulation of leukocytes when injected into laboratory mice.

They found that skin lesions of psoriatic patients contain significantly more of the enzyme, which they call "chemotactic proteinase," than does unaffected skin from the same patients.

A skin disease known as pityriasis rubra pilaris offered further evidence of the link between the enzyme and white

cells, Lazarus said.

The physician called the disease "a dead ringer for psoriasis" except that it doesn't include the latter's characteristic build-up of leukocytes. Laboratory examinations of pityriasis tissue showed no increase in chemotactic proteinase either.

Universal mechanism

"Since the enzyme is found in many tissues of the body and is not just specific for psoriasis, we believe it is a universal mechanism," he said. "That's why it's potentially very important."

"Inhibition of the enzyme may be able to prevent excessive inflammatory cell accumulation in a wide variety of diseases including psoriasis," he added.

The scientist said that he, Thomas and Dr. Robert Gilgor, an assistant professor of dermatology, are currently studying the effects of various enzyme inhibitors on psoriasis patients at the Psoriasis Treatment Center and Clinical Research Unit.

Preliminary results have been "extremely encouraging," Lazarus said.

May be similar

to diabetes treatment

He likened a possible new psoriasis treatment to the way physicians treat diabetes.

"We can't cure diabetes yet because we can't repair the genetic defect that causes it," he explained. "We can make our patients better though by giving them insulin."

"Similarly, we may not understand what caused the increased activity of the enzyme, but if we know it's increased and that it has a pharmacological effect, then we can deal with it pharmacologically."

The Duke scientists published their findings in recent issues of "Nature" and "Science."

Surgery helps give infant 'every chance in life'

(The following was compiled from Associated Press stories and is used with the AP's permission.)

A six-week-old infant became the youngest patient in Duke's history to undergo surgery to correct Crouzon's disease, when a team of physicians performed the high-risk procedure earlier this month.

And he may be the youngest ever to receive the extensive facial surgery that involves manipulating the brain back from the skull so doctors can cut the facial bones and move them into proper alignment, thereby correcting this congenital birth defect.

Clayton Briley, who was born Dec. 2, now has gone home to Battleboro with nothing but an ear-to-ear scar across his scalp to mark his ordeal.

He'll avoid a lot of physical and emotional anguish that Crouzon's could have caused.

Small people, big problems

Operating on such a young child poses



special problems.

"Children start losing body heat, so you have to keep the area around the operating table warm," according to Dr. Robert H. Wilkins, professor and chief of

the Division of Neurosurgery and a member of the team that operated on Clayton.

Another hazard is that even small changes in blood pressure can send the infant into shock.

"We had an excellent anesthesia team (monitoring the child)," Dr. Calvin R. Peters said. "That really helped us get through so quickly."

Peters is assistant professor of plastic and maxillofacial surgery.

The surgery took less time also because the infant's head was smaller and the bones were softer than those of older children for whom the operation can take 12-14 hours. For Clayton, it lasted six.

Openings are closed

Crouzon's affects what doctors call sutures in the baby's skull — the openings where the skull hasn't closed yet. These normally show up at birth as soft spots on a baby's head.

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LOOK MA, PURPLE PANDA! — Having to spend part of the holidays in the hospital is bad enough for anyone, but it's especially trying if you are a child. Representatives from the Duke Children's Classic appealed to Mister Rogers' Neighborhood for help in spreading holiday cheer to children who were hospitalized. Mister Rogers responded by sending 250 records, posters and Purple Panda photos to be distributed in the pediatric playroom during the Christmas season. Patients Chip Corell (left) and Tim Kearney obviously like their records and photos. (Photos by Parker Herring)

