The Moran Foundation
DEPARTMENT OF PATHOLOGY
BAYLOR COLLEGE OF MEDICINE
TEXAS MEDICAL CENTER
HOUSTON, TEXAS 77030

June 23, 1992

Juan Lechago, M.D., Ph.D.
Department of Pathology
The Methodist Hospital

Dear Dr. Lechago:

Please update me on the status of your Moran Foundation project (1-91-0051) entitled "Expression of the Facilitative Glucose Transporter Proteins in Normal Digestive Tissues and Their Neoplasias".

Since approval and funding is generally for a one-year period, all projects approved in or prior to June 1991 should now be "complete", or nearly so.

I need a progress and/or final report regarding your project, including dates and times of any presentations, and information regarding any publications.

Please submit this to me within the next 30 days.

Sincerely yours,

Philip J. Migliore, M.D.
Research Director

PJM/ms

c: Dr. Michael Lieberman
Mr. John Moran

EXPRESSION OF THE FACILITATIVE GLUCOSE TRANSPORTER PROTEINS IN NORMAL HUMAN DIGESTIVE TISSUES AND THEIR NEOPLASIAS

A PROGRESS REPORT

Mamoun Younes, M.D., and Juan Lechago, M.D., Ph.D.

Immunoperoxidase staining of formalin-fixed paraffin-embedded tissue sections:

After an initial trial with few samples, commercial antibodies to all 5 members of the family of facilitative glucose transporters (GT) were used to stain many sections of normal human esophagus, stomach, small intestine, colon and rectum, and pancreas. Sections of adenocarcinomas from the gastrointestinal (GI) tract and the pancreas were also stained. Since the antigen used to make the antibody was not available to us to use in preparing our negative control (where one would incubate the antibody with the antigen before applying to the slide), we used normal rabbit serum as a negative control. A section of human kidney was used as a positive control, since all types of GT mRNA were found in the kidney.

There was positive staining in most tissue sections, but staining of the apical membranes of the collecting duct cells in the kidney section was also seen. This was disturbing because glucose transport does not take place in this segment of the nephron, and thus interpreting the results of staining of the normal and neoplastic GI tissues became impossible.

Immunofluorescence staining of frozen tissue sections and HT-29 colon cancer cell line:

Only one of the five antibodies (GT1) stained HT-29 cells. One tested on frozen sections of colon cancer that also include normal colonic mucosa, only the cancer stained in 3 of the 4 cases tested. Interestingly, there was no convincing staining of frozen section of human kidney with this antibody.

Where do we stand now?

Faced with the difficulty in interpreting the results using the commercially available antibodies, and with the promising results obtained with GT1 antibody, we generated an antibody against a different epitope of the GT1. We tested this antibody by ELISA and found it to be good .

Currently we are purifying the antibody, and to continue our study as

outlined previously in our proposal.