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May 31, 1994.

Dear Dr. Migliore:

Thanks for your letter of April 25, 1994. I must apologize for taking so long to provide you with a progress report. I have been involved in the preparation of a PPG submitted to NIEHS today and have been very busy. I am happy to report that partly because of the monetary help that I received from the Moran Foundation, I was able to collect preliminary data for a project under the PPG entitled " γglutamylcysteine synthetase expression and xenobiotic metabolism". Please find attached a summary of the progress report on my Moran Foundation project entitled 'Cloning and sequence analysis of the mouse γglutamylcysteine synthetase (γGCS) gene':

I have completed Specific Aim 1 of my project [i.e., To Identify Recombinant DNA Clones Encoding the GCS Gene in a Mouse (129) Genomic Library] and have just began to sequence and characterize the gene (Specific Aim 2). The project is thus still active, but because of the apparent size of the gene (32 kb), it will take quite a bit of time to sequence and characterize it.

I would like to thank the Scientific Advisory Committee and the Moran Foundation for supporting this research.

Sincerely yours,

Joseph Osei-Frimpong, Ph.D.

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Progress Report- Cloning and sequence analysis of the of the mouse γglutamylcysteine synthetase (γGCS) gene - [3-93-0067]

A. I have isolated **15 different λ-phage clones carrying genomic fragments from the γGCS gene** from a mouse (129SvEv) genomic library and have characterized five of these clones : mGCS10, mGCS10, mGCS15, mGCS16A, and mGCS16C. A tentative 32-kb map of the γGCS gene based on these phage inserts is shown in Figure 1 below. I hope to characterize the entire mouse γGCS gene from these five clones, but will analyze more clones if necessary.

B. I have **localized the first coding exon of the mouse γGCS gene to a 1.6-kb genomic fragment** (see Figure 1 below). This fragment is been subcloned and will be sequenced in the very near future.

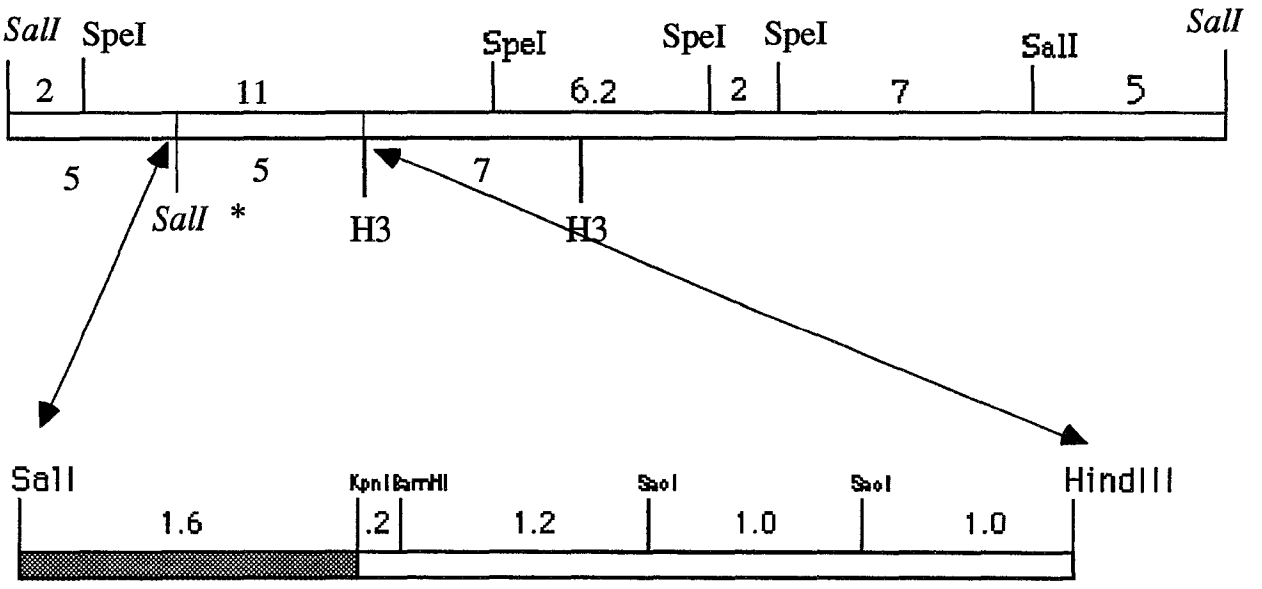

Figure 1. The approximate location of the first coding exon in the 32-kb tentative map of mouse γGCS gene. The shaded areas is the 1.6 kb fragment that likely contain the first and/ or second coding exons. Sizes of all fragments are approximations. All clones are oriented 5' to 3'. The SalI marked with an asterisk (*) is at the end of clone mGCS15 and not a site in the map.