Greetings from PROGRESS, the Prostate Cancer Genetic Research Study, and welcome to the eighth edition of our participant newsletter. With your ongoing assistance, we are continuing our work to unravel the causes of prostate cancer. We hope you find this brief update to be informative and helpful.

**Genome Scan Results**

The goal of PROGRESS is to understand why prostate cancer runs in some families. As you know, we have been collecting blood samples and family information to look for the location of genes that may make some families more susceptible to the disease. The method we are using to search for prostate cancer genes is called a genome scan. We are looking at many different locations within the human genome using genetic markers to determine if men who get prostate cancer share the same pieces of DNA more often than men who don’t have the disease.

We recently completed our genome scan in the first group of PROGRESS families. Using 886 DNA samples provided by participants in 94 families, we looked at 380 markers located all across the genome, resulting in a total of 336,680 pieces of genetic data. The method we use to analyze this large amount of data is called linkage analysis. The results of linkage analysis show how likely it is that two regions of the genome (the marker and the disease gene) are inherited together, which is represented by a number called a LOD score. A LOD score greater than three provides evidence that there may be a susceptibility gene located near that marker. LOD scores between 1.5 and 3.0 are considered “suggestive” and additional studies are needed to determine if there is truly evidence for a susceptibility gene at that location.

Though none of the LOD scores in the total set of 94 families were above three (the level that would show that the marker may be close to a prostate cancer gene), we identified six potential areas of interest located on six different chromosomes. None of these locations, or loci, has yet been found to contain a gene for prostate cancer, but it gives us a better idea of where to focus our search. Our strongest result was on chromosome 11, a region previously implicated in prostate cancer. Our genome scan results will be published in the July issue of the American Journal of Human Genetics. Please contact us if you would like a copy of the published paper. You may also visit the journal web site, which has the paper online: http://www.ajhg.org/journal/

**GLOSSARY OF GENETIC TERMS**

**Chromosomes:** Structures found in every cell nucleus that store and transmit genetic information. Chromosomes come in pairs. The human genome consists of 22 pairs of autosomes, numbered 1 through 22, and one pair of sex chromosomes (XX for females, XY for males).

**DNA:** The substance of heredity. A large molecule that carries the genetic information or code that cells need to replicate and to produce proteins.

**Gene:** A segment of DNA which contains instructions for a cell to produce a protein.

**Human genome:** All of the genetic material (genes) in the 23 pairs of human chromosomes.

**Genome scan:** A technique to find disease-causing genes by looking for patterns of inheritance at many different genetic markers (or sign-posts) across the entire genome.

**Linkage analysis:** A statistical technique to identify markers which trace patterns of heredity (genes) in families with several people affected with the disease.

**Locus** (plural: loci): The position or location on a chromosome of a particular gene or marker.

**LOD (abbreviation for “logarithm of the odds ratio”):** A statistical result that measures the association between a genetic marker and a potential disease gene.

**Marker:** A particular sequence of DNA (for which the location is known), that can be used as an established “landmark” within the genome to tell where and on which chromosome a gene may be located.

**Susceptibility gene:** An inherited (present at birth) segment of DNA which may contain mutations or important changes in its code that make an individual more likely to develop a disease or condition.
OTHER PROSTATE NEWS

A Potential Prostate Cancer Gene on the X Chromosome

In addition to our genome scan paper, we have a second publication coming out this summer. The second paper describes results from our analysis of 186 PROGRESS families at a region called HPCX. The HPCX region was first identified in 1998 by a group of researchers from Johns Hopkins University and the Mayo Clinic along with scientists from Sweden and Finland. Using linkage analysis, they identified a place (or locus) on the X chromosome which appeared to be linked to prostate cancer. We examined the HPCX region and found very little evidence that this region is linked to prostate cancer in the families that we studied. Our results for HPCX may mean that this locus does not account for much of the prostate cancer occurring in PROGRESS families. As described above, we are using a genome scan to identify regions of interest that may contain prostate cancer genes that are important in our families. Our HPCX results will be published in the journal Human Heredity. Please contact us if you would like a copy of the paper when it is published.

Preventing Prostate Cancer

While we and others are working to understand the genetics of prostate cancer, researchers are also working on ways to prevent prostate cancer. There are two exciting prostate cancer prevention studies being conducted that may be of interest to you. Both studies are coordinated by a group of physicians and researchers called the Southwest Oncology Group (SWOG). The SWOG coordinating center for both studies is here at the Fred Hutchinson Cancer Research Center in Seattle.

The Prostate Cancer Prevention Trial, or PCPT, is a study to determine if the drug finasteride (also known by the brand name Proscar) helps to prevent prostate cancer. Since the study began in 1994, more than 18,000 men have volunteered. Study participants have been randomly assigned to take either the drug finasteride or a placebo (an inactive substitute). All men in the study will take either the drug or the placebo for seven years. At the end of seven years they will have a prostate biopsy to see if they have prostate cancer. If the drug is effective the group of men who take finasteride will have fewer prostate cancers than the group of men who take the placebo. It will be several years before the results of the study are available.

The Selenium and Vitamin E Trial, or SELECT, is a new cancer prevention study beginning this fall. The goal of this study is to determine if vitamin E and/or selenium supplements can reduce the risk of prostate cancer. The researchers are hoping to enroll more than 32,000 men across North America to participate. For more information about these prevention trials, and other cancer research, please contact the Cancer Information Service at 1-800-422-6237. Canadian citizens may contact the Canadian Cancer Information Service at 1-888-939-3333.

KEEPING IN TOUCH

Additional Family Information

We are in the process of expanding our information about PROGRESS families. As part of this process, we are now collecting death certificates for certain men who have passed away. The death certificate will be used to verify the age at death and cause(s) of death. Written documentation, such as a death certificate, is very important for this type of genetic research. Every death in the U.S. is recorded by the state where the person died. Some of you may have received a death certificate information form along with this newsletter. In order to obtain these records from the Vital Records office of each state, we need to collect information about when and where the person died. These details help the Vital Records staff to locate the documents we request. When we request these documents from the state, we are required by federal and state laws to keep all records confidential. If you did not receive a death certificate information form with this newsletter, it means that we already have the information we need about your family at this time, or we have sent a request to one of your other participating relatives. If you did receive a form, please take a moment to complete the information and mail it back to us in the envelope provided. The information you provide will be very helpful to the study.

FHCRC - The PROGRESS Study
1100 Fairview Avenue N, MW 814
P.O. Box 19024
Seattle, WA 98109

Catch Us on the Web!
www.fhcr.org/science/phs/progress_study/

Call us toll-free:
1-800-777-3035
Or E-mail us at:
progress@fhcrc.org