DNA Day
April 19, 2013

Celebrating Fox Chase Cancer Center
NURSES in GENES
1953
DNA
Discovered
By Watson
and
Crick

2003

In 50 short years
Human Genome Project
Completed

50 Years of DNA: From Double Helix to Health
A Celebration of the Genome
Celebrating 10th Anniversary of the Completion of the Human Genome Project
April 19, 2013
Where we have come from and where we are going

Medical Era  Genetic Era  Genomic Era

Medical/Genetic Era

- Look at single genes
- Wait for symptoms
- Treat symptoms
- Shot gun/trial & error approach

Genomic Era

- Interaction of genes with each other and the environment
- Risk reduction for genetic predisposition
- Treat cause
- Approach tailored to genetic/genomic profile

DEFINITIONS

- Genetics – study of individual genes and their impact on relatively rare single gene disorders
- Genomics – study of all the genes in the human genome together, including their interactions with each other, the environment, and other psychosocial and cultural factors
Genomics and Oncology

Oncology is Genetics/Genomics

Initiation and Proliferation
- Tumor suppressor, repair genes
- Cell Signaling
- Oncogenes
- Cell adhesion genes

Tumor Suppression, Angiogenesis
- Metastasis
- Chemoresistance genes

Mutations
- Mutations
- More Mutations