

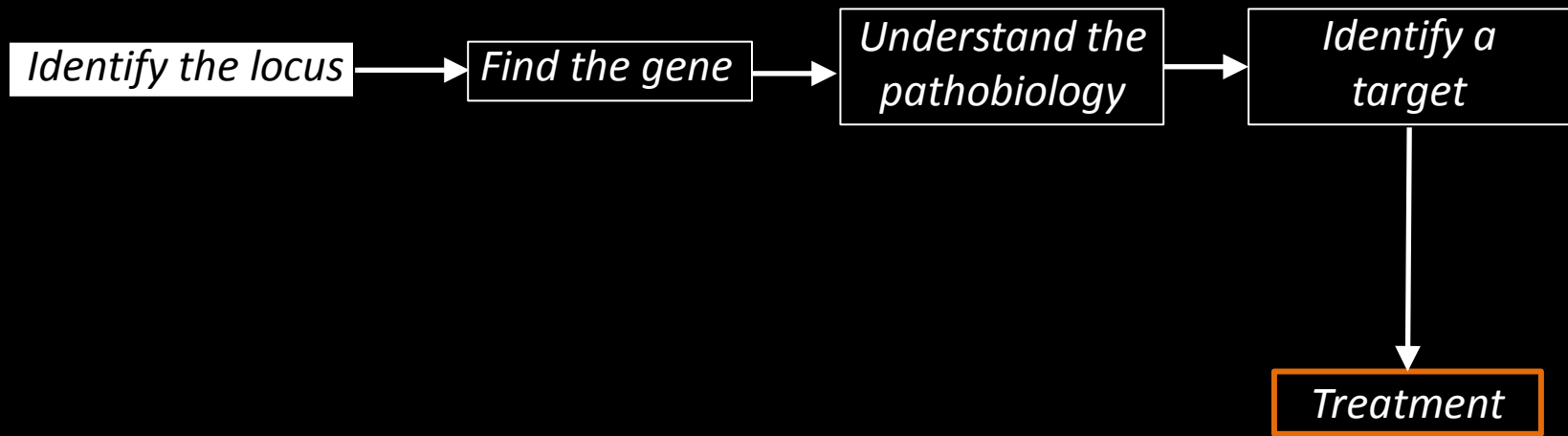


Andrew Singleton, Chief of the Laboratory of Neurogenetics

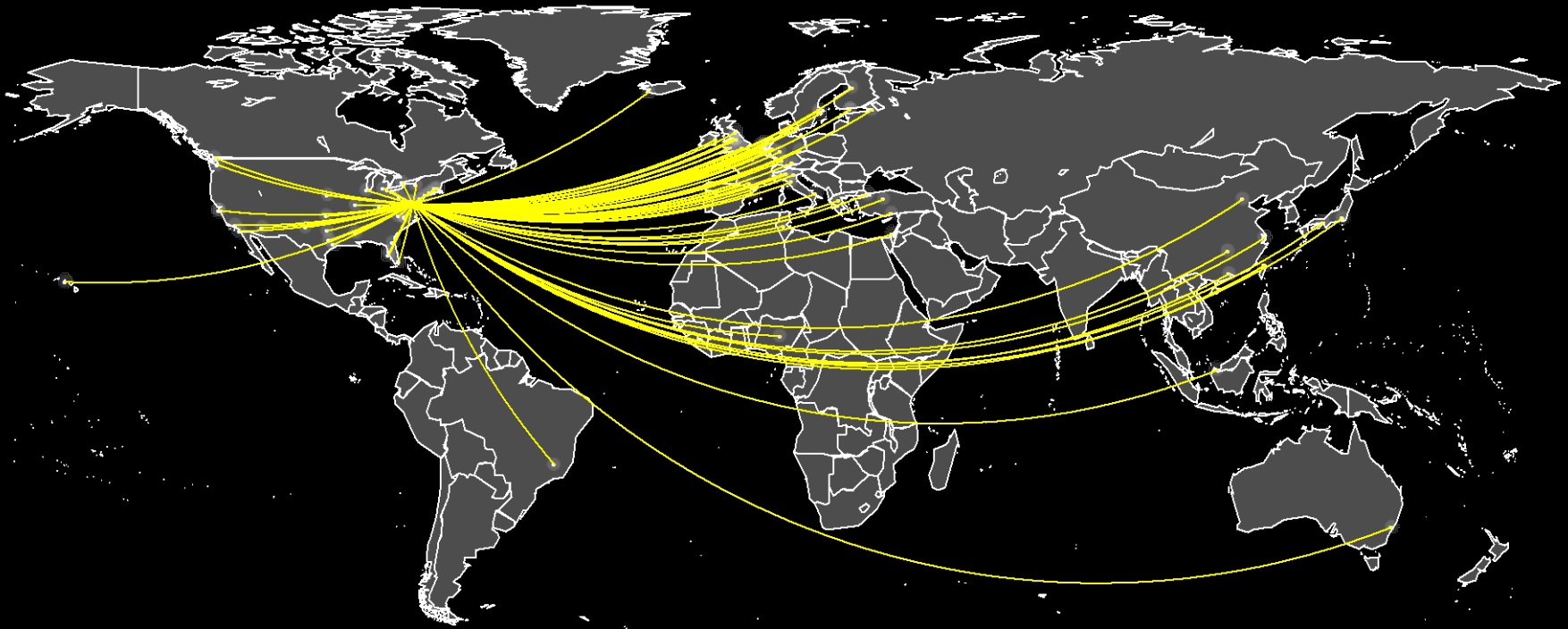
Our Priority – Diseases of Aging

- Alzheimer's disease
 - 5 million in the US currently affected (\$203 billion)
 - 15 million by 2050 (\$1.2 trillion)
- Parkinson's disease
 - 1 million in the US currently affected (\$25 billion)
 - 4 million by 2050 (~\$150 billion)
- Amyotrophic Lateral Sclerosis
 - 30,000 in the US currently affected (\$300 million)

Our Path



Our Partners



National Institute on Aging
Turning discovery into health

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



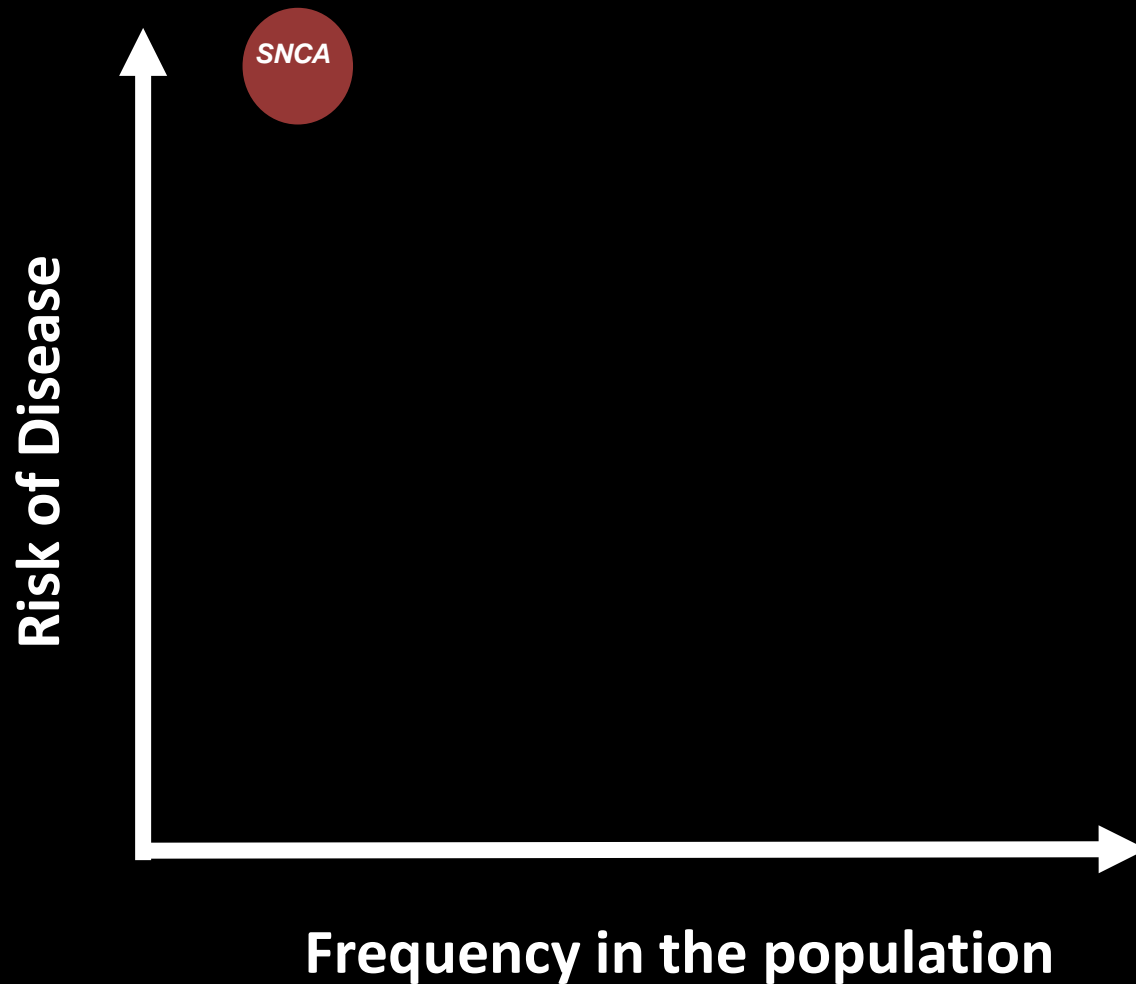
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014

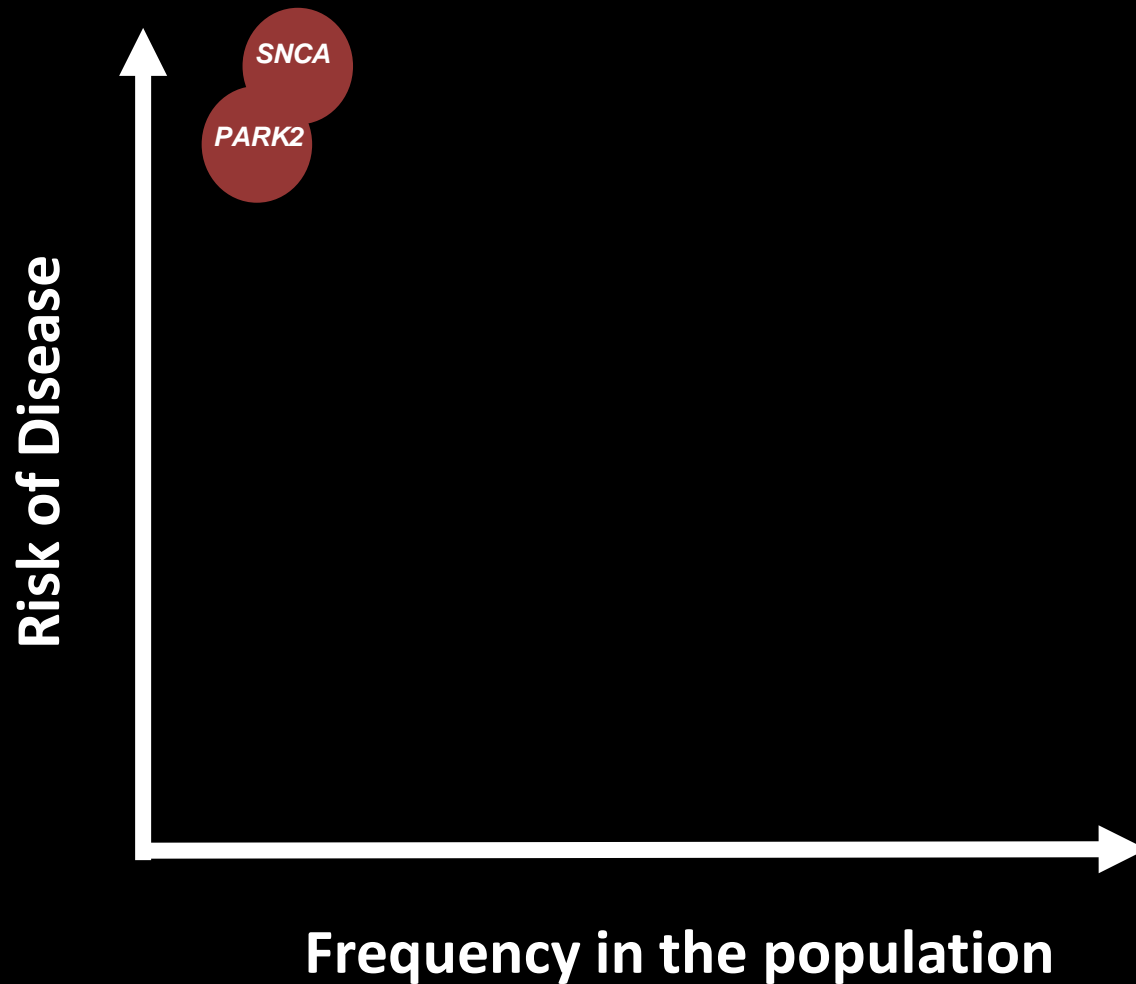


National Institute on Aging
Turning discovery into health

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



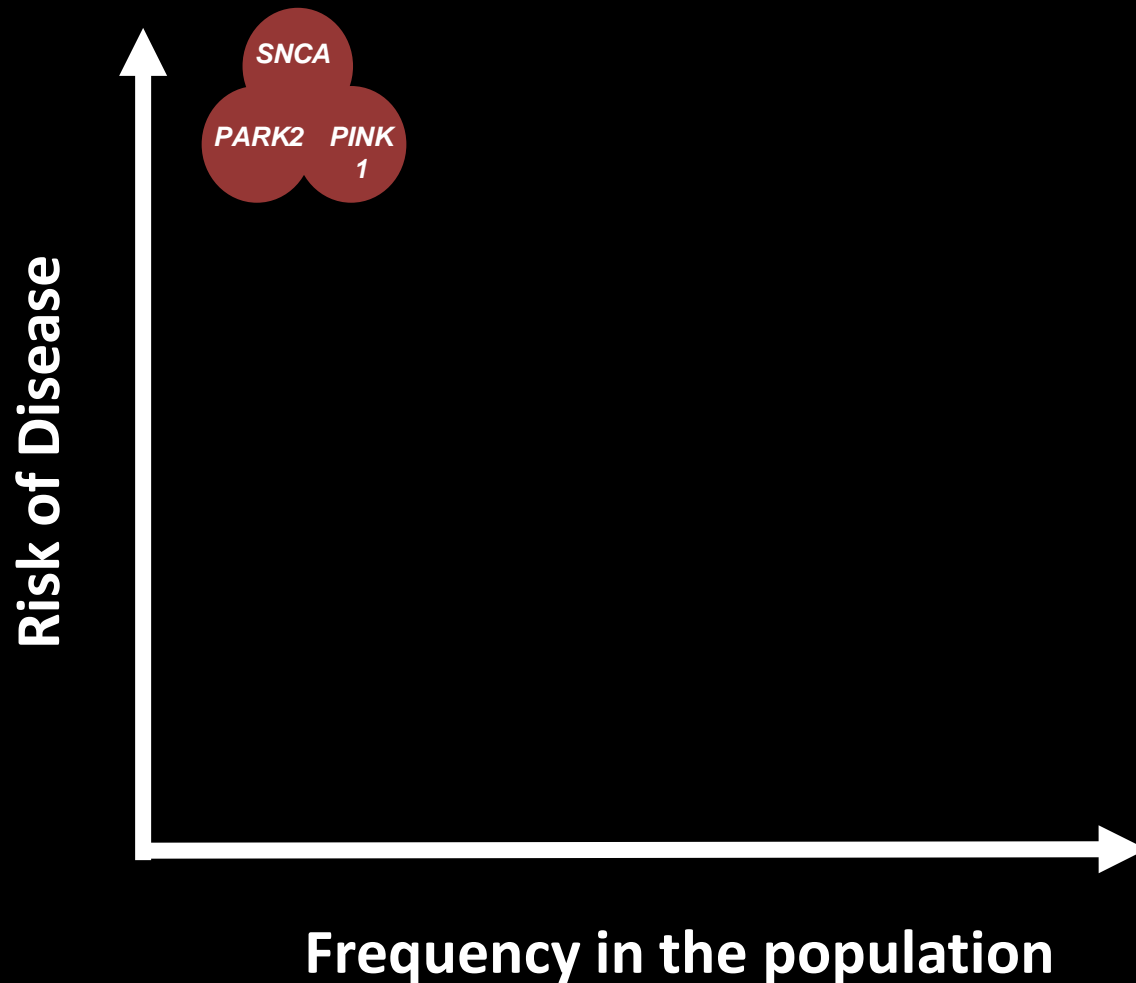
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



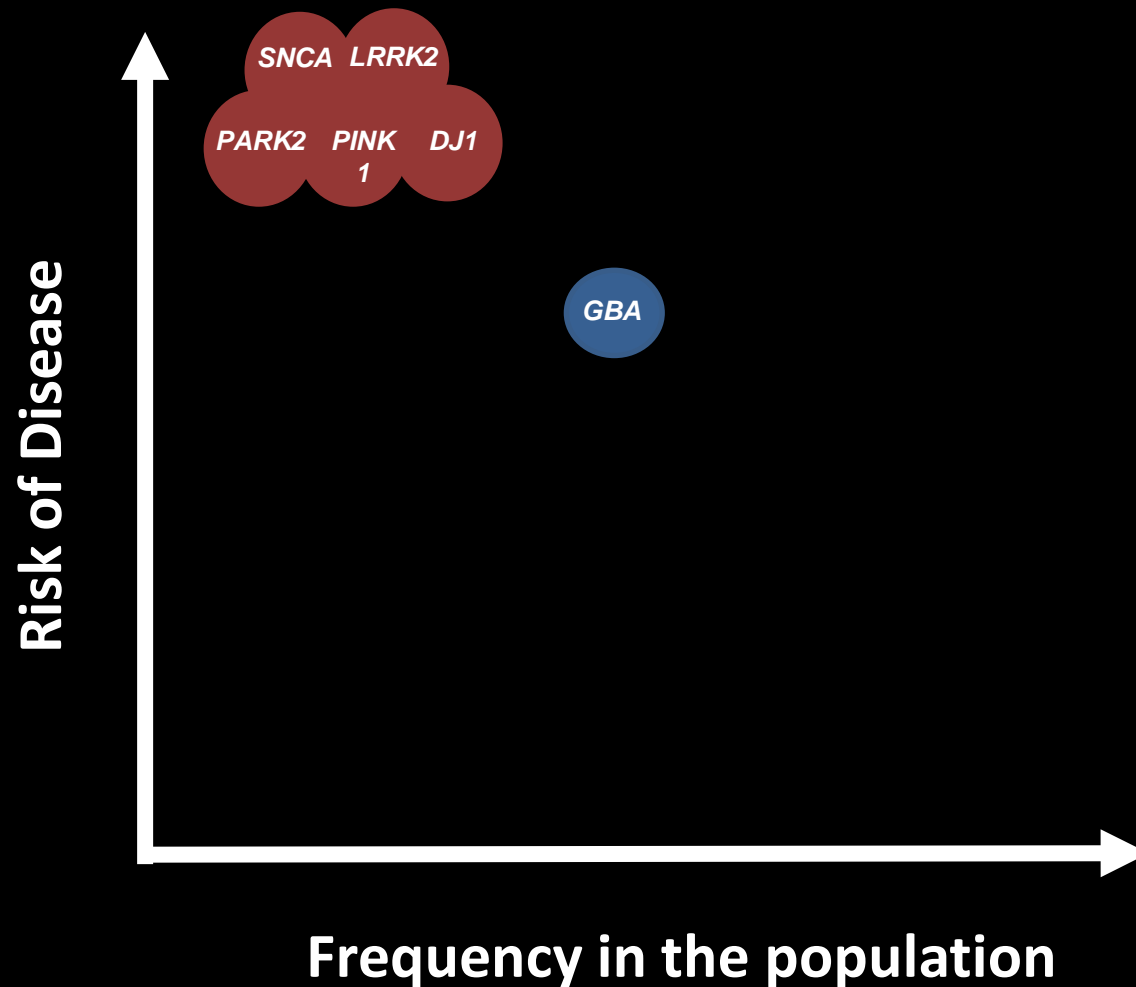
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



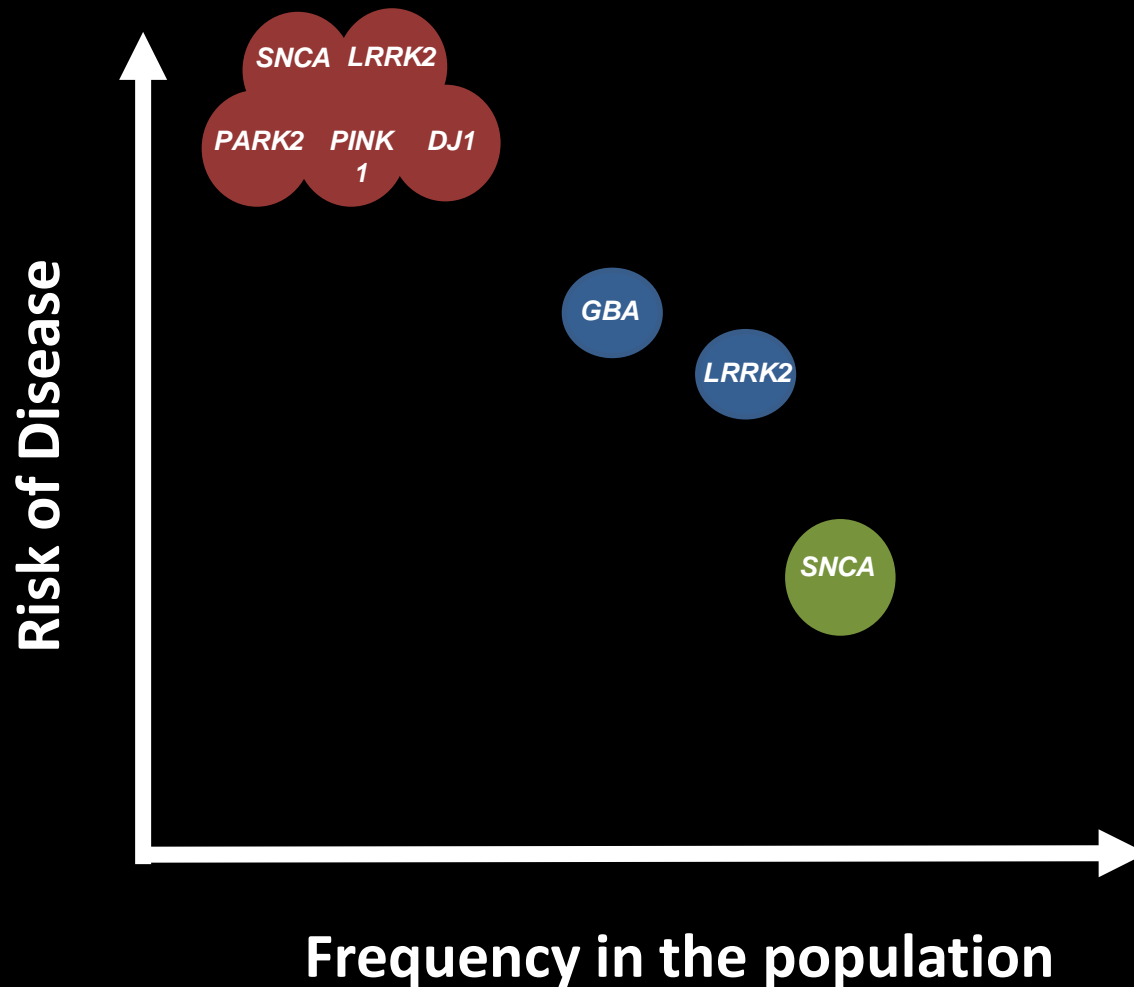
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



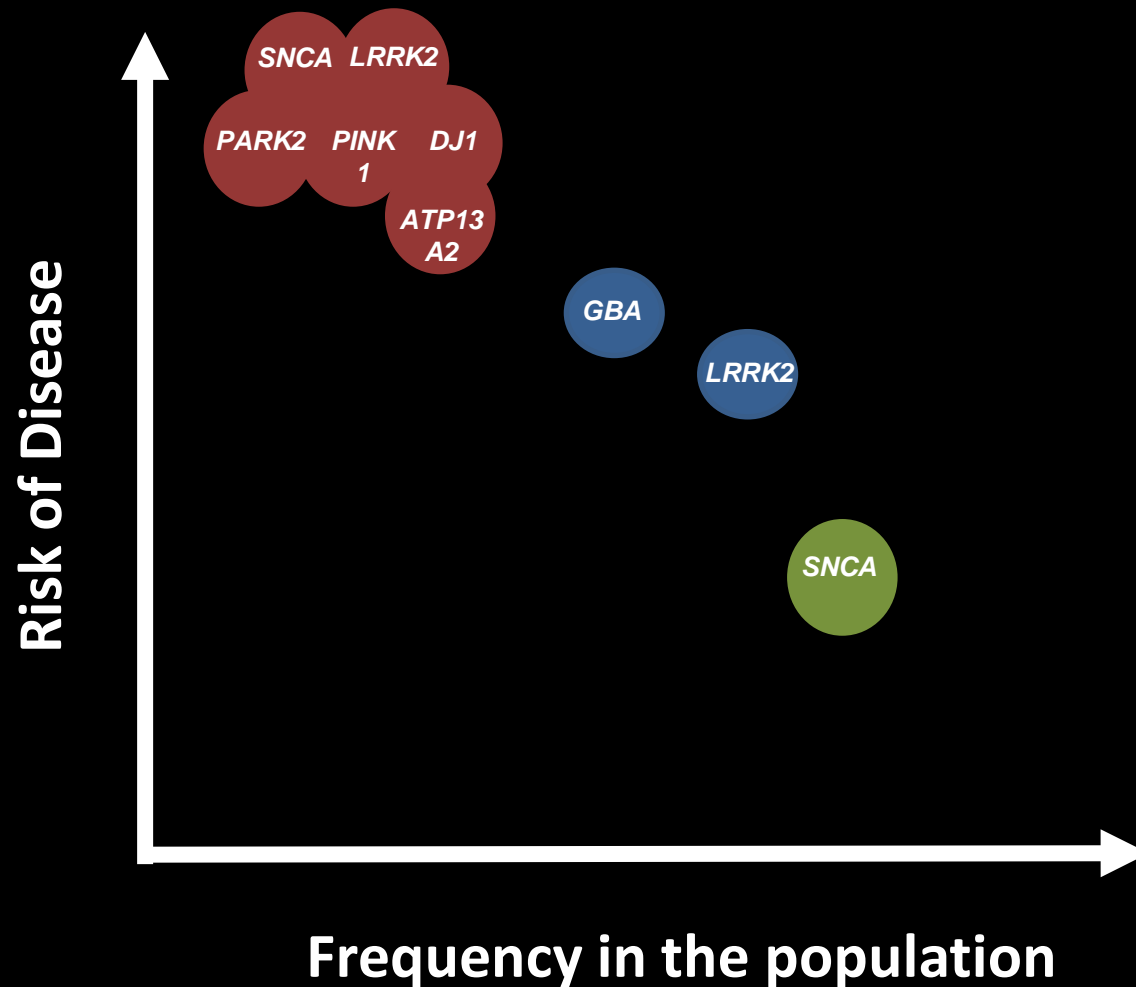
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



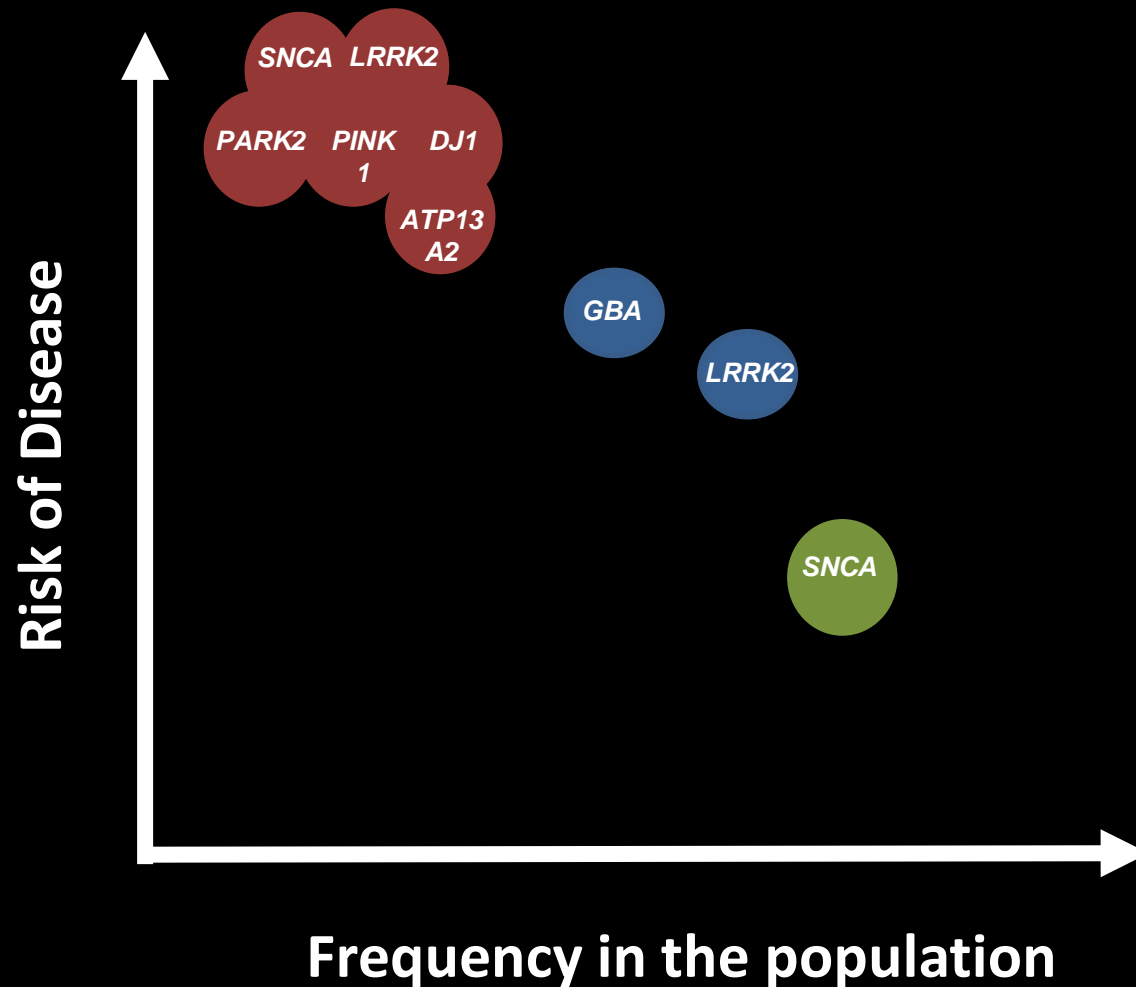
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



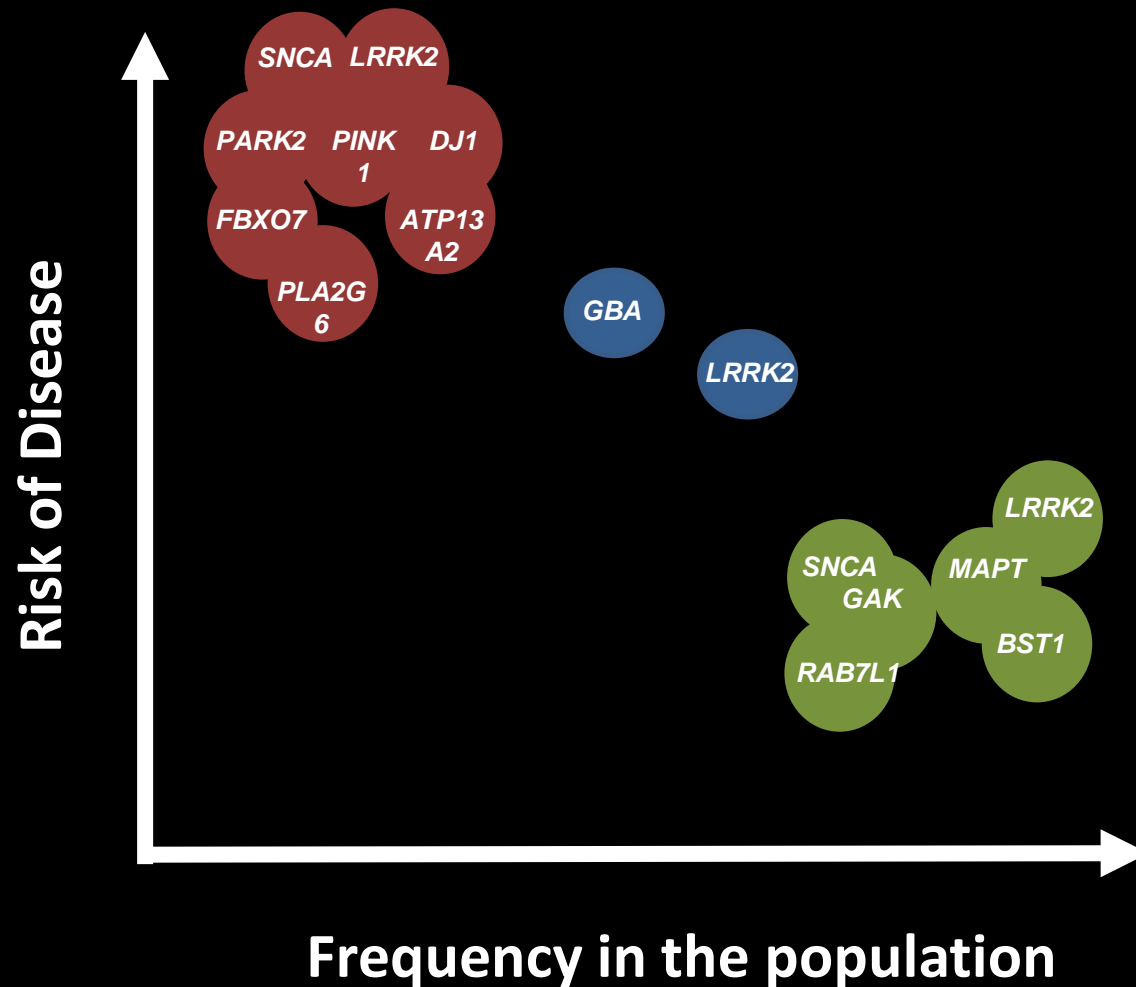
National Institute on Aging
Turning discovery into health

Frequency in the population

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014

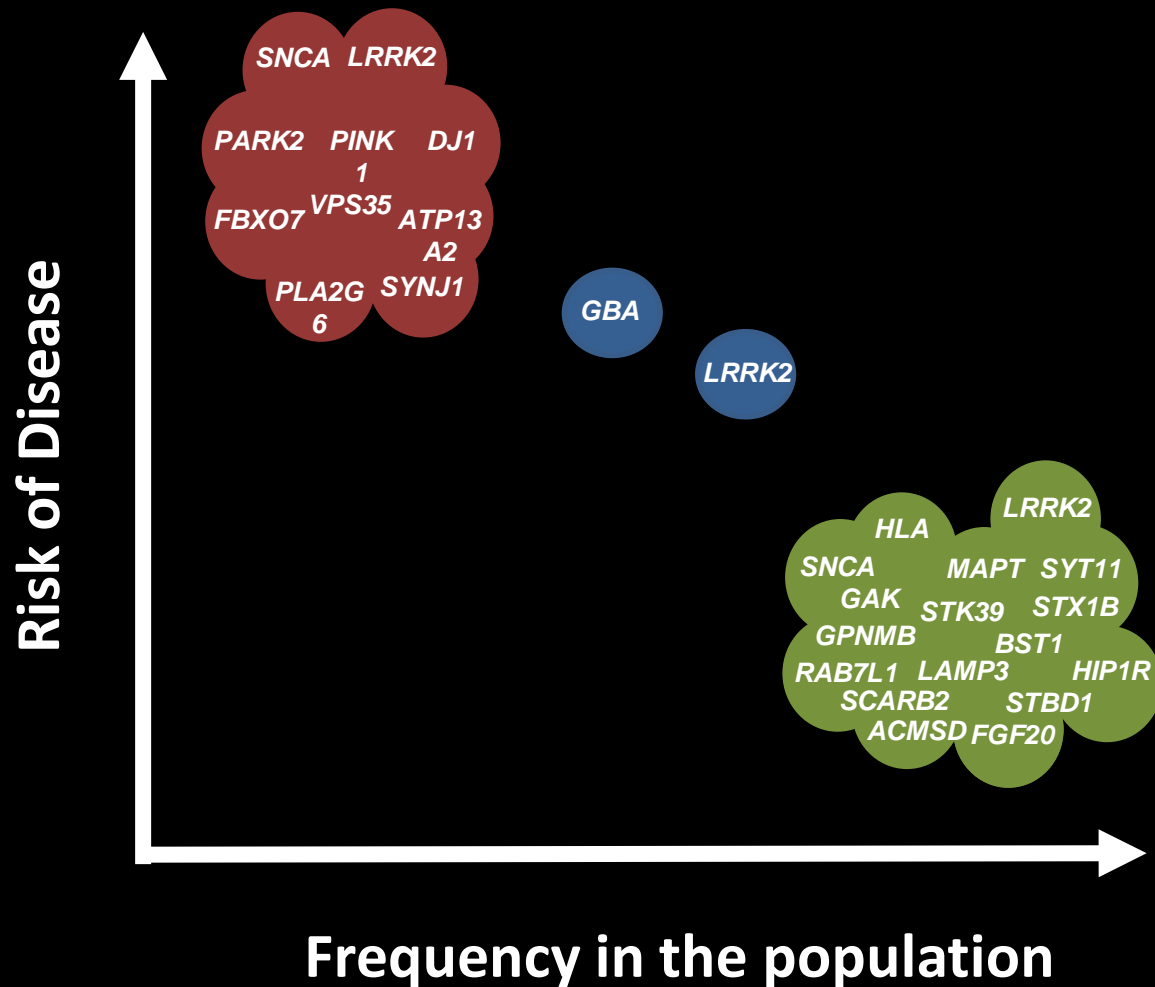


National Institute on Aging
Turning discovery into health

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



National Institute on Aging
Turning discovery into health

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Our Progress

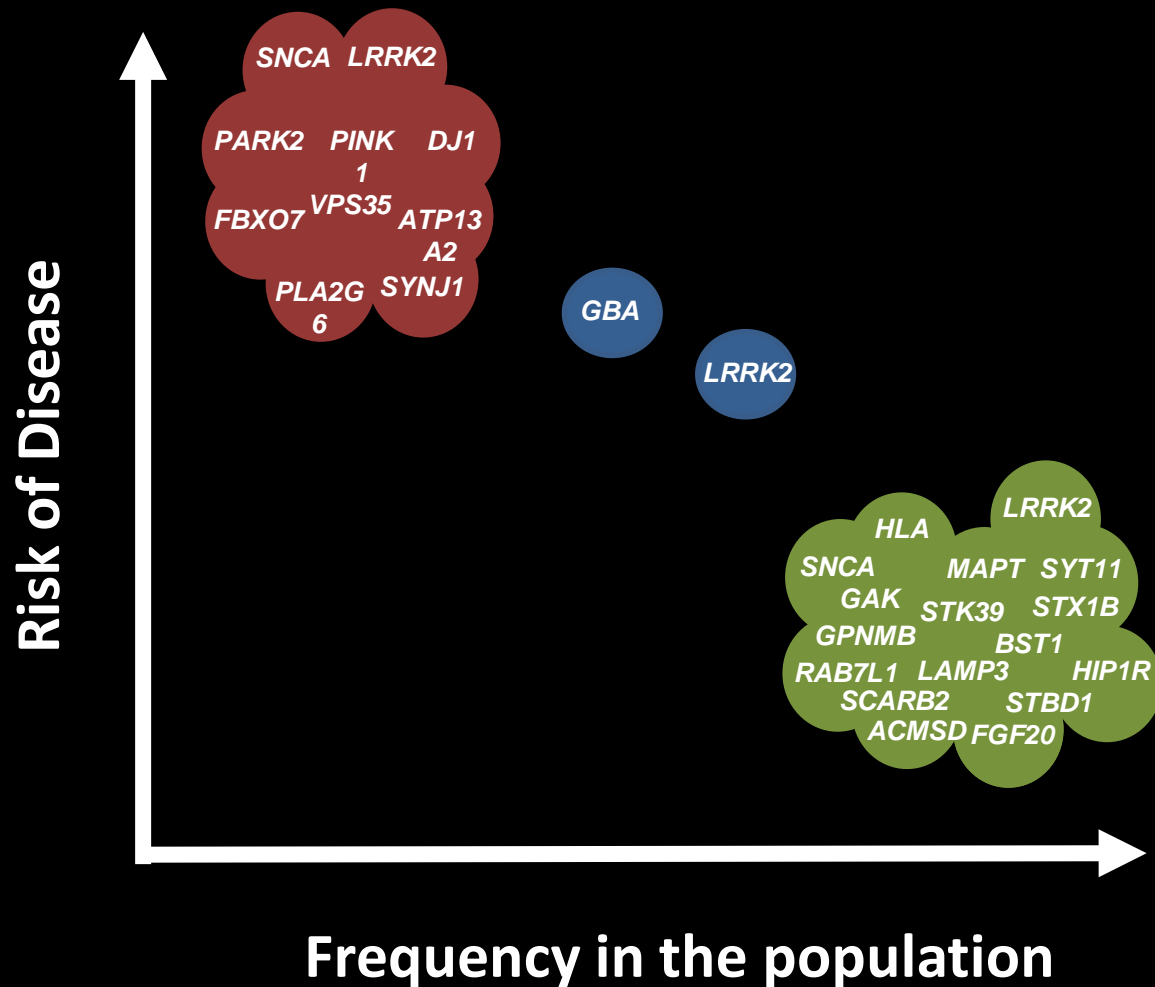
- Massive international collaborative study
 - Collected DNA on 20,000 PD patients, and 80,000 people without disease
- Assessed variability in their genetic code (~20 million common changes)
- Looked for genetic variants that are more frequent in one group versus the other

Our Progress

- Took 3 years of work at sites across the US
- Lead by our laboratory within the Intramural Research Program of NIA

Genetics of Parkinson's Disease

1996 1998 2000 2002 2004 2006 2008 2010 2012 2014

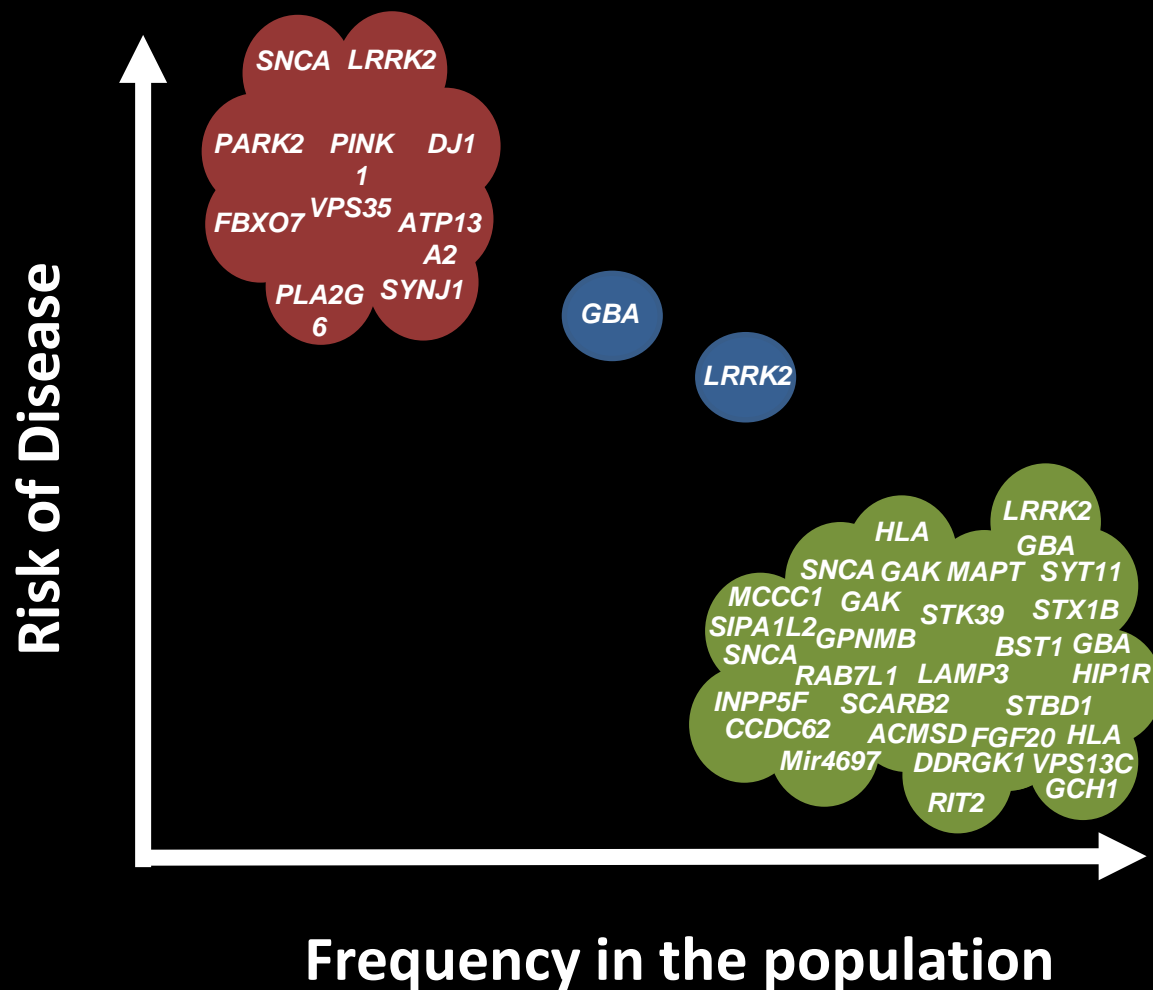


National Institute on Aging
Turning discovery into health

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Genetics of Parkinson's Disease

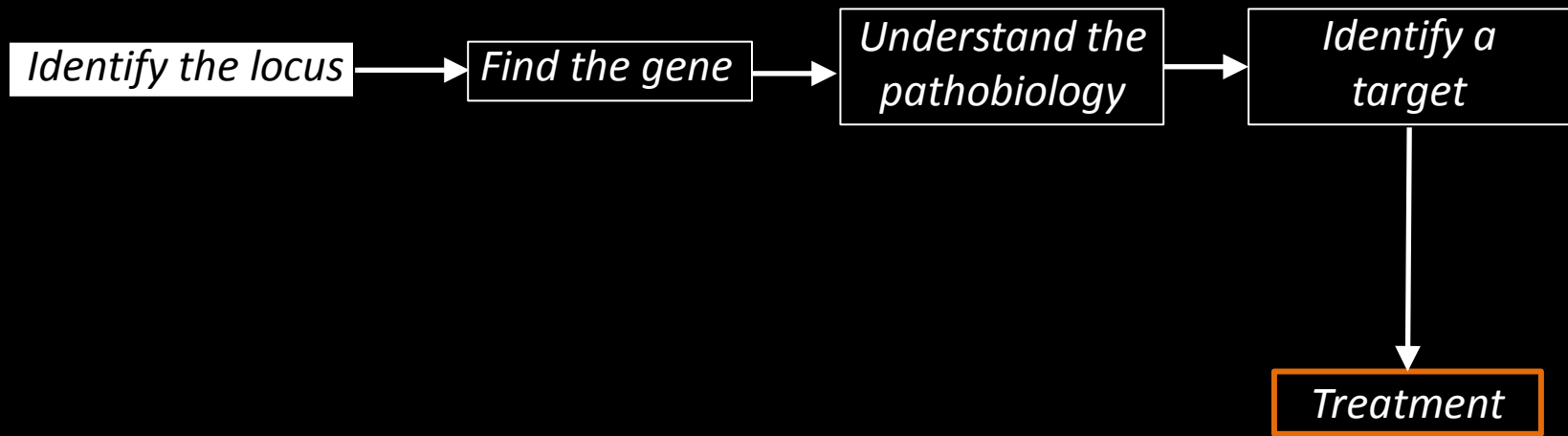
1996 1998 2000 2002 2004 2006 2008 2010 2012 2014



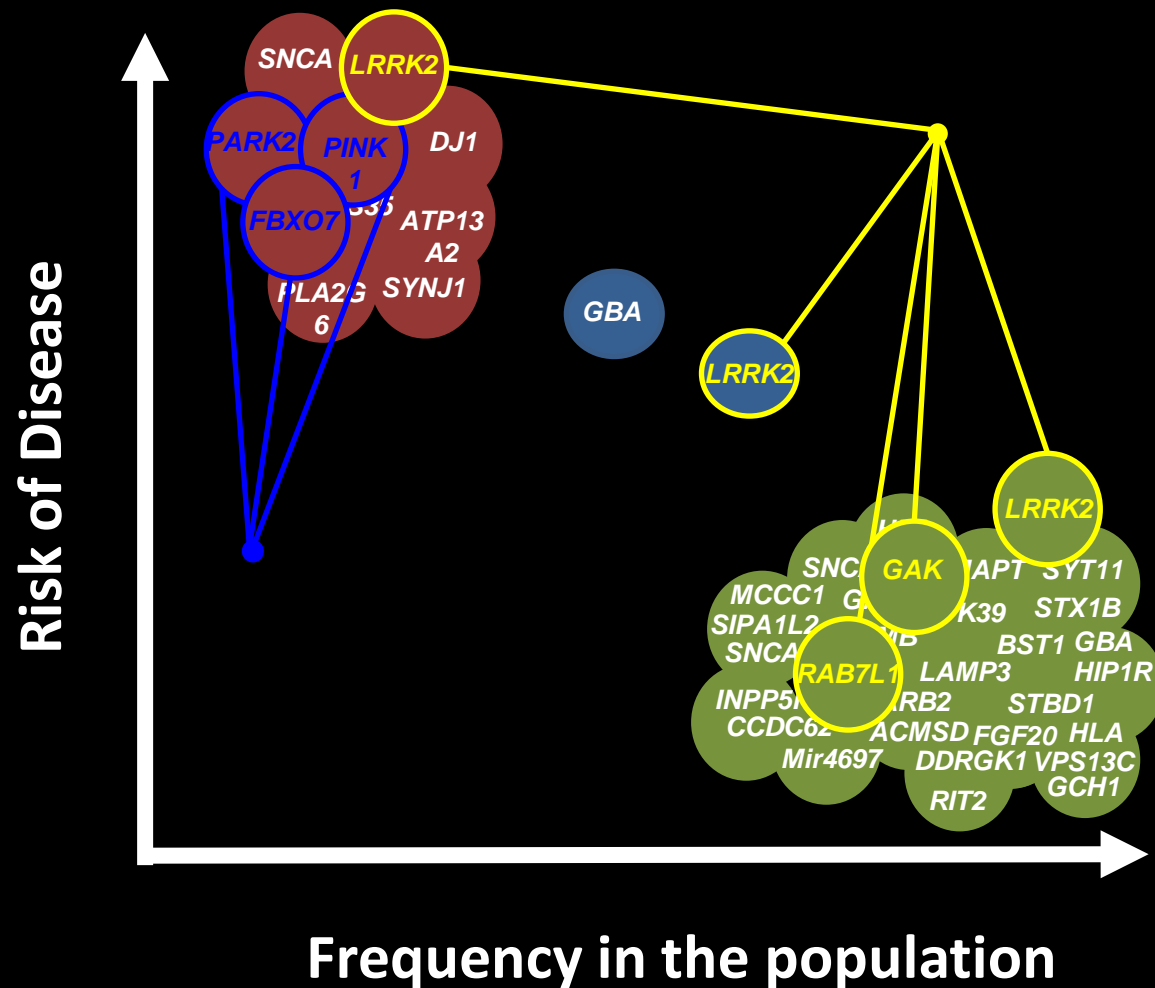
National Institute on Aging
Turning discovery into health

Andrew Singleton, Laboratory of Neurogenetics
SINGLETA@MAIL.NIH.GOV

Our Path



Pathways of Disease



Summary

- We have made incredible progress in the genetics of age related disease
 - Still a great deal to do
 - We have the infrastructure and knowhow to finish this task
- Concurrently we must work to understand the molecular processes that are disease
 - An incredible challenge, but our surest route to an effective treatment

Our People

