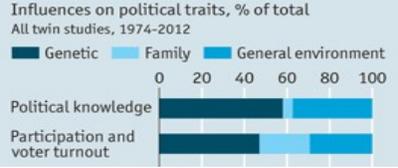
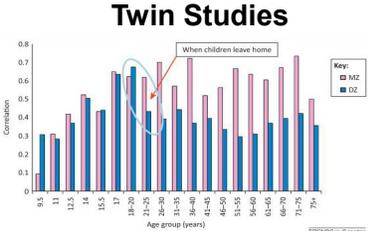
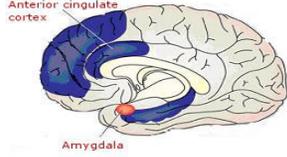
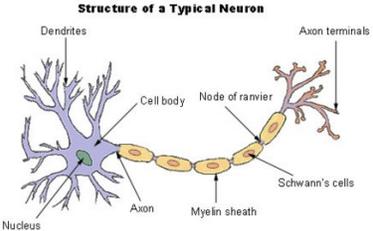
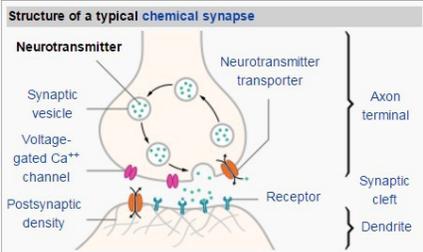


How Genes Influences Our Politics

<p>Genetic factors:</p> <p>neurological, physiological, psychological and genetic differences</p>	<p>Influences on political traits, % of total All twin studies, 1974-2012</p>  <p>Legend: Genetic (dark blue), Family (light blue), General environment (medium blue)</p>	<p>Environmental factors:</p> <p>parents, peers, schools, life experience, media</p>
<p>Identical twins, with 100% of the same genes, tend to retain correlation on political viewpoints</p>	<p style="text-align: center;">Twin Studies</p>  <p>Key: MZ (dark blue), DZ (light blue)</p>	<p>Fraternal twins, with 50% of the same genes in general, have lower correlation in agreement on political stances, especially after leaving the family environment.</p>
<p>Liberal Predispositions</p>		<p>Conservative Predispositions</p>
<p>Larger Anterior Cingulate Cortex acts as auditor with typical 300-500 ms response</p> <p>more reliance on proof analytic reasoning accepting of change</p>	<p style="text-align: center;">Brain Differences</p> 	<p>Larger Amygdala -security officer with typical 30 ms response fearful</p> <p>hard-wired the world is dangerous prefers stability, maintain order tendency to “shoot from the hip”</p>
<p>Less sensitive to potential threats</p>	<p style="text-align: center;">Negativity Bias</p> <p>an evolutionary trait involving the limbic system (especially the amygdala)</p>	<p>stronger startle reflex - more defensive politics response to threatening photographs - discrimination response to disgusting images – fear of the “other” 95% predictive for political views</p>
<p>Openness:</p> <p>open, tolerant, flexible creative, imaginative, curious complex, nuanced thought</p>	<p style="text-align: center;">Big Five Personality traits</p> <p>Block and Block study of 3-4 yearolds and again at 23-24, showing that these traits are somewhat formed by genetics.</p>	<p>Conscientiousness :</p> <p>conventional, ordinary simple, decisive, closed-minded concerned with rules and norms dogmatic, rigid, intolerant</p>
<p>Low-authoritarian: open-minded more cerebral accepting of some uncertainty accept new scientific ideas concern for outgroups concern for inequality</p>	<p style="text-align: center;">Authoritarianism</p> <p>Altemeyer: submission aggression traditionalism</p> <p>Tuschman: tribalism tolerance for inequality perception of human nature</p>	<p>High-authoritarian: conscientiousness (r = 0.5) closed-minded (r = 0.4) racial and ethnic prejudice intolerance for dissidents order, structure and security anti-intellectualism tolerance for war high tolerance for inequality anti-intellectual</p>

Genes are distinct regions of human DNA that form the blueprint for molecules that regulate the development and function of the human body. There are an estimated 25,000 genes in the 23 pairs of chromosomes of human DNA and some genes can affect political traits. For example, the amygdala volume is associated with a variations of the SLC6A4 and the FGF14 gene. There are also two genes, MAOM and 5-HTT, which can predict interest in voting. Others are described below.

<p>Scientists are now studying 11 genes which might be responsible for inclining people towards liberalism or conservatism. These include genes involved in the regulation of two neurotransmitters, dopamine and serotonin. Dopamine has been shown to be correlated with openness and serotonin with conscientiousness.</p> <p>The DRD4-7R variant on chromosome 11 is sometimes called the “adventure” gene or the “novelty seeking” gene partially blocks dopamine receptors. Individuals with this gene require more dopamine in order to register that warm feeling and therefore are more open to new ideas.</p>	<p style="text-align: center;">Quantitative Genetics</p> <p style="text-align: center;">Structure of a Typical Neuron</p>  <p style="text-align: center;">Structure of a typical chemical synapse</p>  <p>Neurons send electrical signals internally, but chemical neurotransmitters are needed to send signals to receptors in other neurons.</p>	<p>Under normal circumstances, the neurotransmitter serotonin works in the brain to inhibit the firing of the amygdala, the structure that controls fear, anger and other emotional responses. Lower levels of serotonin tend to cause lack of control of the amygdala.</p> <p>A gene on chromosome 4 called NARG1 affects serotonin reception and is associated with fear conditioning and aggressive behavior.</p> <p>The 5-HTT gene on chromosome 17 also affects serotonin receptors and produces a greater fear response and enhanced right amygdala response (the negativity bias.)</p>
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Bibliography

- Altemeyer, Bob: *The Authoritarian Specter*, Harvard University Press (1996)
- Heatherington, Marc J. and Weiler, Joathan D. : *Authoritarianism and Polarization in American Politics*, Cambridge University Press (2009)
- Hibbing, John R, Smith, Kevin B. , and Alford, John R. : *Differences in Negativity Bias Underlie Variations in Political Ideology*, Behavioral and Brain Sciences (2014)
- Hibbing, John R., Smith, Kevin B. , and Alford, John R. : *Predisposed: Liberals, Conservatives and the Biology of Political Differences*, *Predisposed*, Routledge (2013)
- Khahneman, Daniel : *Thinking Fast and Slow*, Farrar, Strauss and Giroux (2013)
- Kling, Arnold : *The Three Languages of Politics*, Ebook (2013)
- Kourt, Alexandros: *The Curiosity Gene*, CreateSpace Independent Publishing Platform (2015)
- Mooney, Chris : *The Republican Brain*, Wiley (2012)
- Mullen, Thomas ; *Where Do Conservatives and Liberals Come From ?* , CreateSpace Independent Publishing Platform (2015)
- Tuschman, Avi : *Our Political Nature, The Evolutionary Origins of What Divides Us*. Prometheus Books (2013)

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