



~20,000 genes



~30,000 genes

Same:

resting potentials

action potentials

neurotransmitters

Ion channels

Second messenger cascades

etc. etc.

The range of our uniqueness

1. Just like any other animal
2. Same basic design, novel use
3. No animal precedent

Same basic design, novel use

- Aggression
- Theory of mind
- The Golden Rule
- Empathy
- Pleasure in anticipation and gratification
postponement
- Culture

Same basic design, novel use

- Aggression
- **What is no longer unique: Killing of a member of your own species, organized violence, genocide**
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- The Golden Rule
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Same basic design, novel use

- **Aggression**
- What is no longer unique: Killing of a member of your own species, organized violence, genocide
- **And humans: passive aggression, looking the other way, damning with faint praise...**
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- Theory of mind:
- **What is no longer unique: its very existence**

- The Golden Rule
- Empathy
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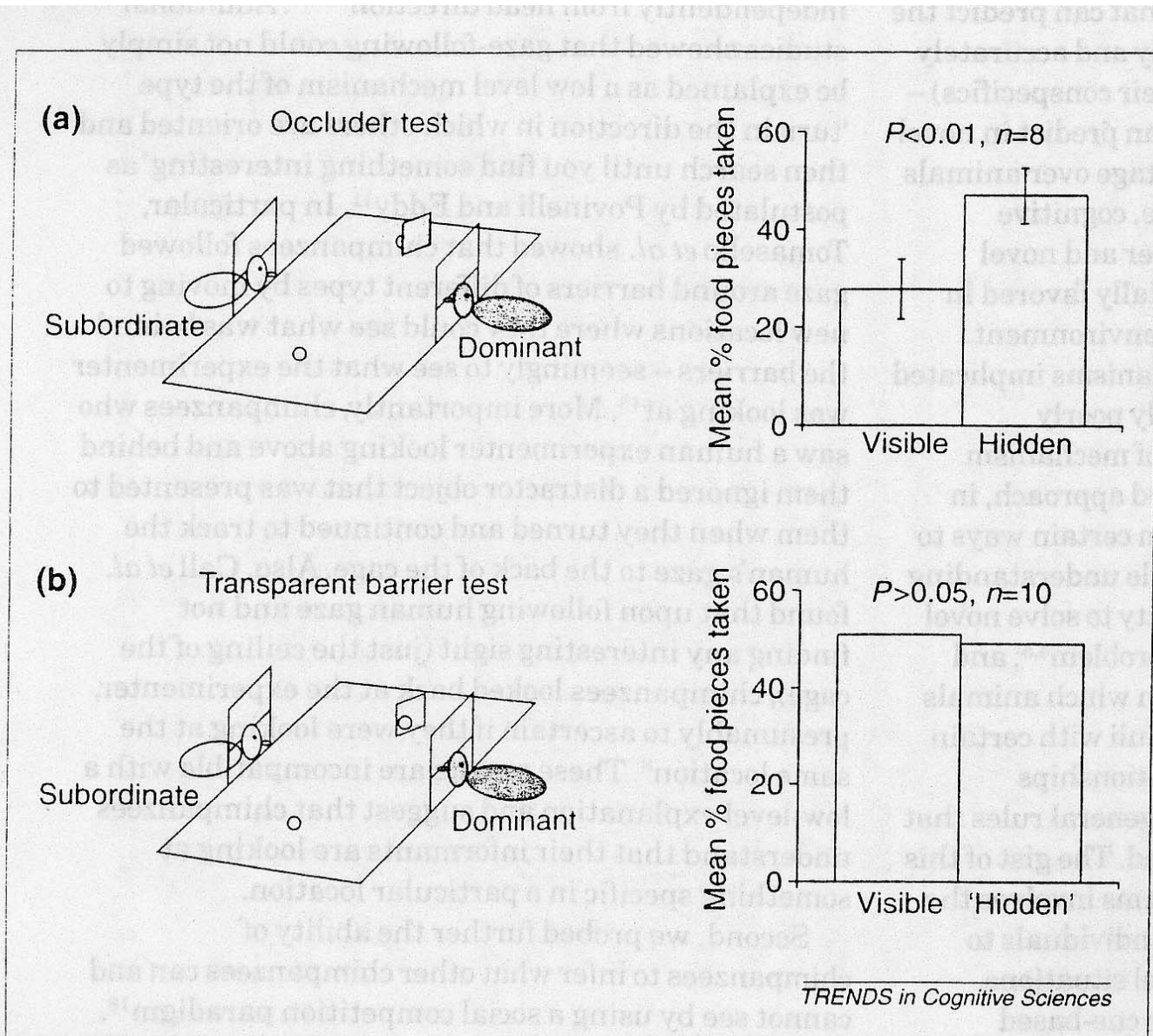


Fig. 1. Mean percentage of pieces of food retrieved by subordinate chimpanzees as a function of whether food pieces could be seen by the dominant chimpanzee. In the occluder test (a) one of the pieces of food is hidden from the dominant chimpanzee, and this increases the likelihood of its being retrieved in preference to the visible piece. When both pieces of food can be seen by the dominant animal (b), there is no difference in retrieval percentage.

Chimp theory of mind

- If...big scary guy...and he saw the banana...don't bother.
- If...big scary guy...and he didn't see the banana...quick grab it.
- If...little scrawny guy...whether or not he saw the banana...grab it.

Same basic design, novel use

- Aggression
- **Theory of mind:**
- What is no longer unique: its very existence

- **And humans: secondary theory of mind**

- The Golden Rule
- Empathy
- Pleasure in anticipation and gratification postponement
- Culture



Secondary Theory of Mind among theater-goers

Same basic design, novel use

- Aggression
- Theory of mind
- **The Golden Rule:**
- **What is no longer unique: Tit for Tat reciprocity**

- Empathy
- Pleasure in anticipation and gratification postponement
- Culture





Same basic design, novel use

- Aggression
- Theory of mind
- **The Golden Rule:**
- What is no longer unique: Tit for Tat reciprocity

- **And humans: what if someone would have done to them something different than you would have done to you?**
- Empathy
- Pleasure in anticipation and gratification postponement
- Culture

“Beat me,” said the masochist.

“No,” said the sadist.

Same basic design, novel use

- Aggression
- Theory of mind
- The Golden Rule
- **Empathy:**
- **What is no longer unique: de Waal's chimps and the innocent bystander**
- Pleasure in anticipation and gratification postponement
- Culture



Same basic design, novel use

- Aggression
- Theory of mind
- The Golden Rule
- **Empathy:**
 - What is no longer unique: de Waal's chimps and the innocent bystander
- **And humans: the abstraction and extension of empathy**
 - Pleasure in anticipation and gratification postponement
 - Culture



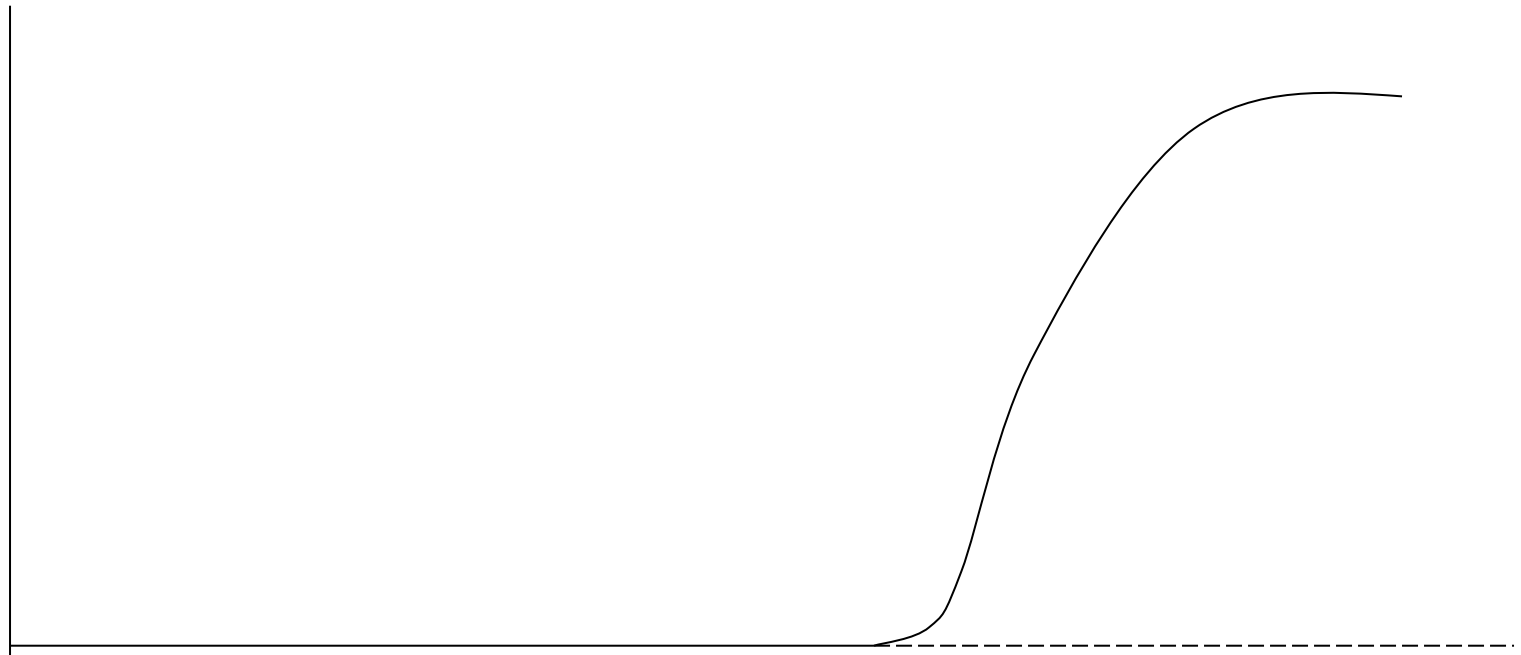




Same basic design, novel use

- Aggression
- Theory of mind
- The Golden Rule
- Empathy
- **Pleasure in anticipation and gratification postponement:**
- **What is no longer unique: when is dopamine released in a problem-solving monkey?**
- Culture

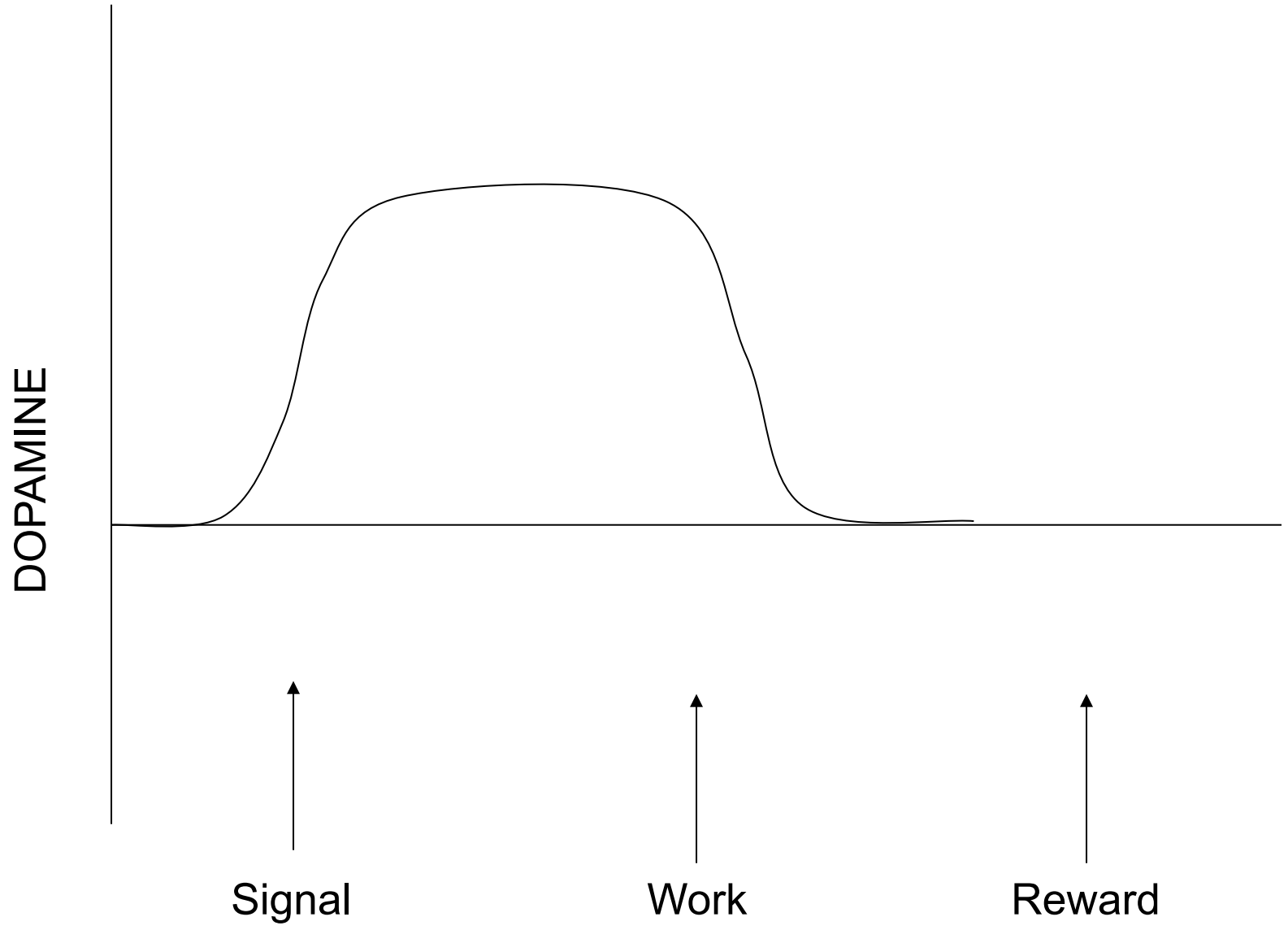
DOPAMINE

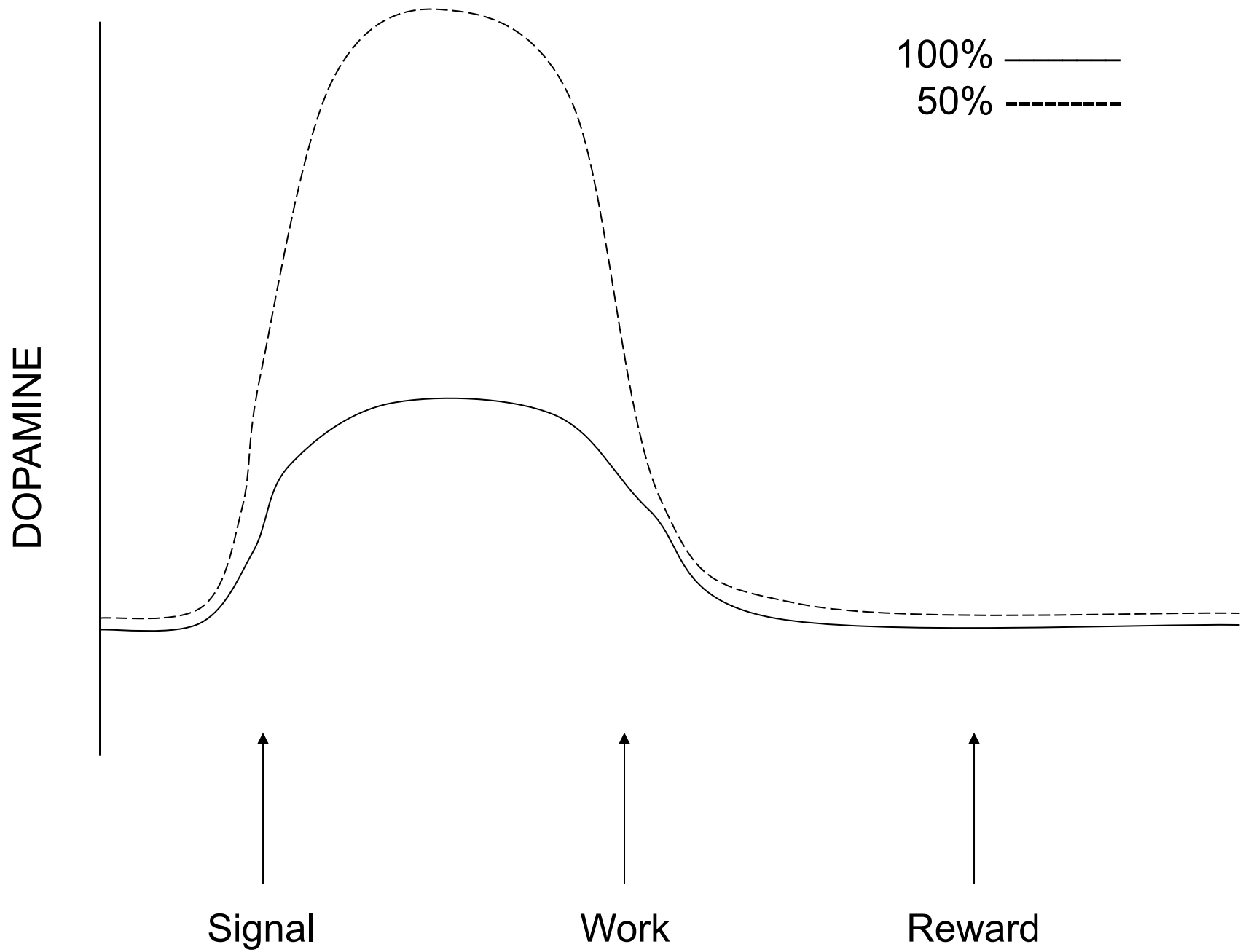


Signal

Work

Reward





Same basic design, novel use

- Aggression
- Theory of mind
- The Golden Rule
- Empathy
- **Pleasure in anticipation and gratification postponement:**
 - What is no longer unique: when is dopamine released in a problem-solving monkey?
- **And humans: the time element**
- Culture



The martyrdom of Saint Sebastian

Same basic design, novel use

- Aggression
- Theory of mind
- The Golden Rule
- Empathy
- Pleasure in anticipation and gratification postponement
- **Culture**
- **What is no longer unique: cultural transmission of tool-making and use, of vocalizations, of group temperament**
- And humans: the sheer complexity and magnificence of human culture



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- **And humans: the sheer complexity and magnificence of human culture**



Carmen Miranda lookalike leads the Incredible, Unforgettable Conga Line

Joel Shprentz Photo

Uncharted, unprecedented
terrain:

- Gaining the strength and will to do X from the irrefutable evidence that X cannot be

Kierkegaard:

Christian faith requires that faith persists in the face of the impossible, and that humans have the capacity to simultaneously believe in two contradictory things



Deep Blue bytes back!

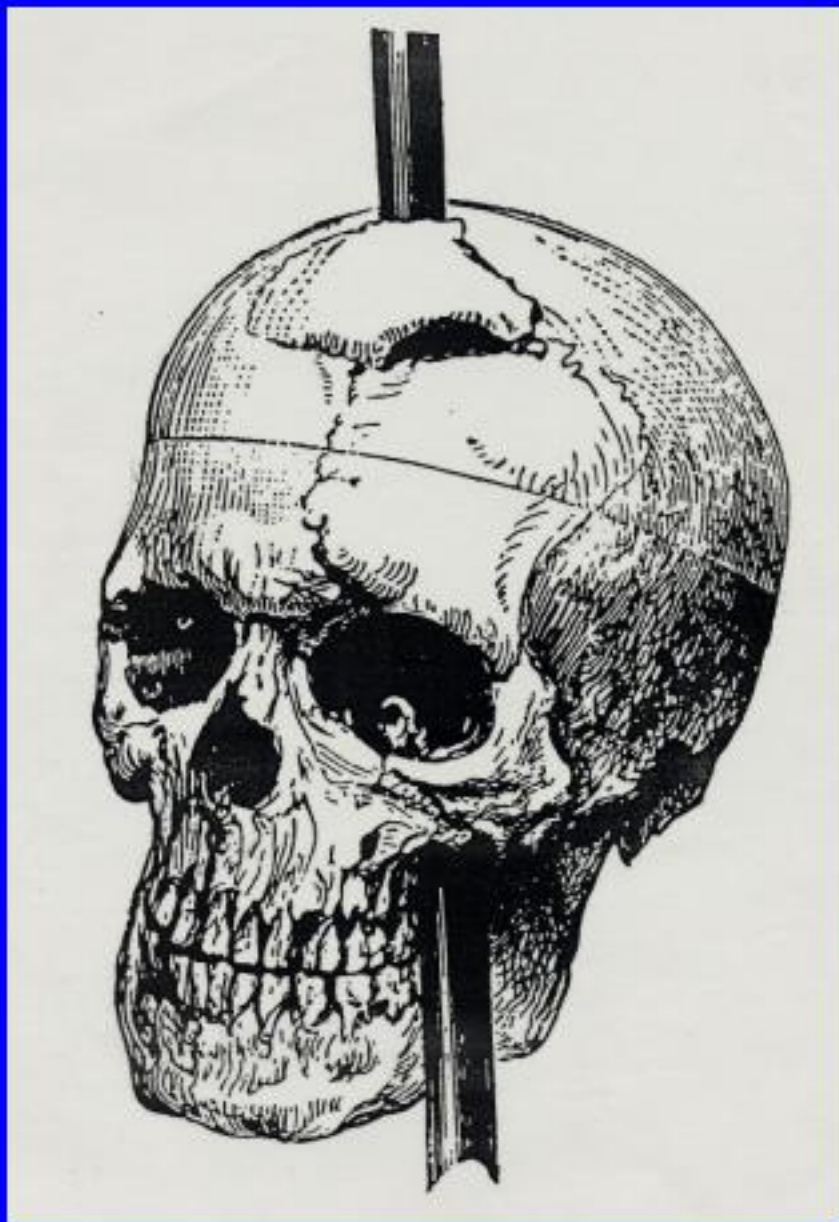
MAIN STORY

5 | 4 | 97



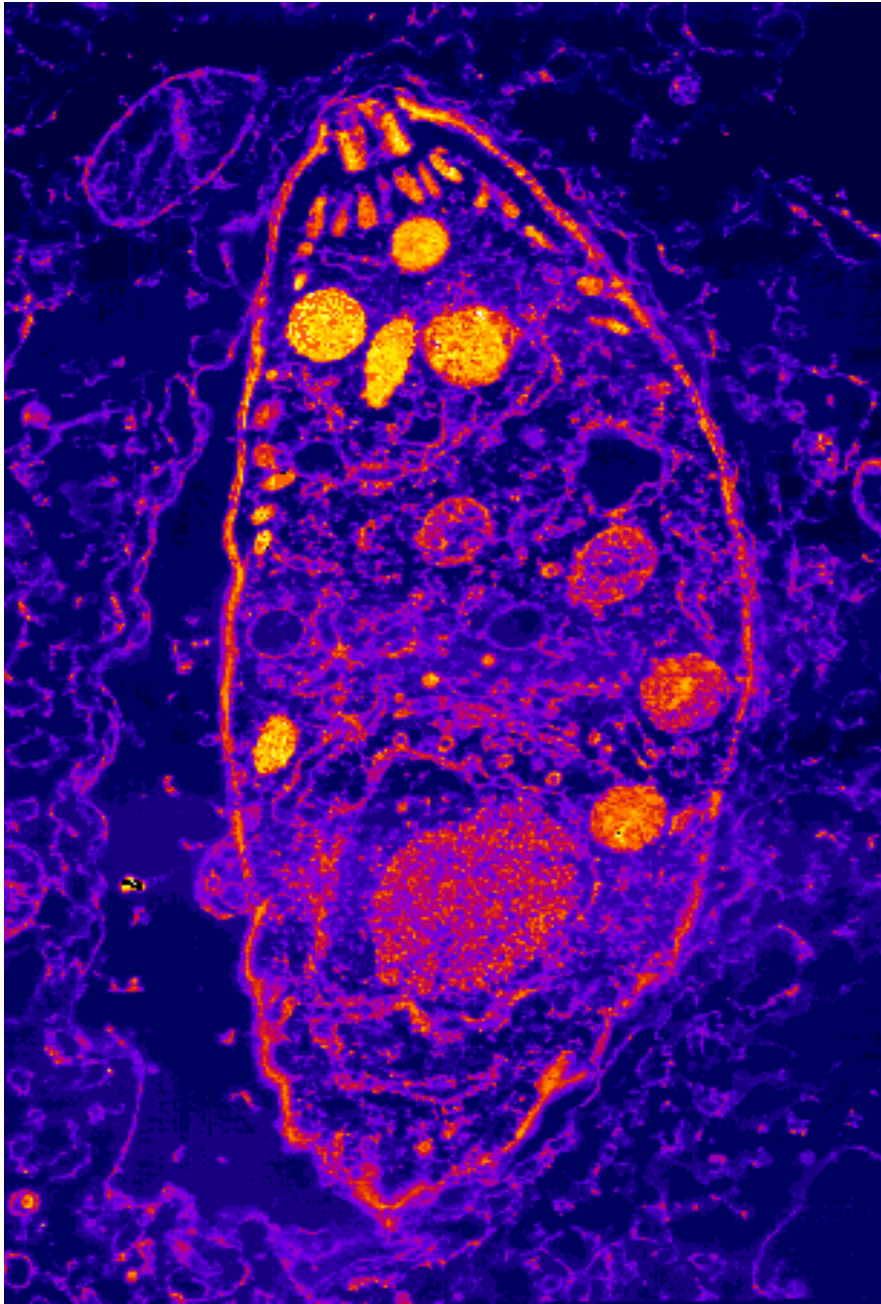


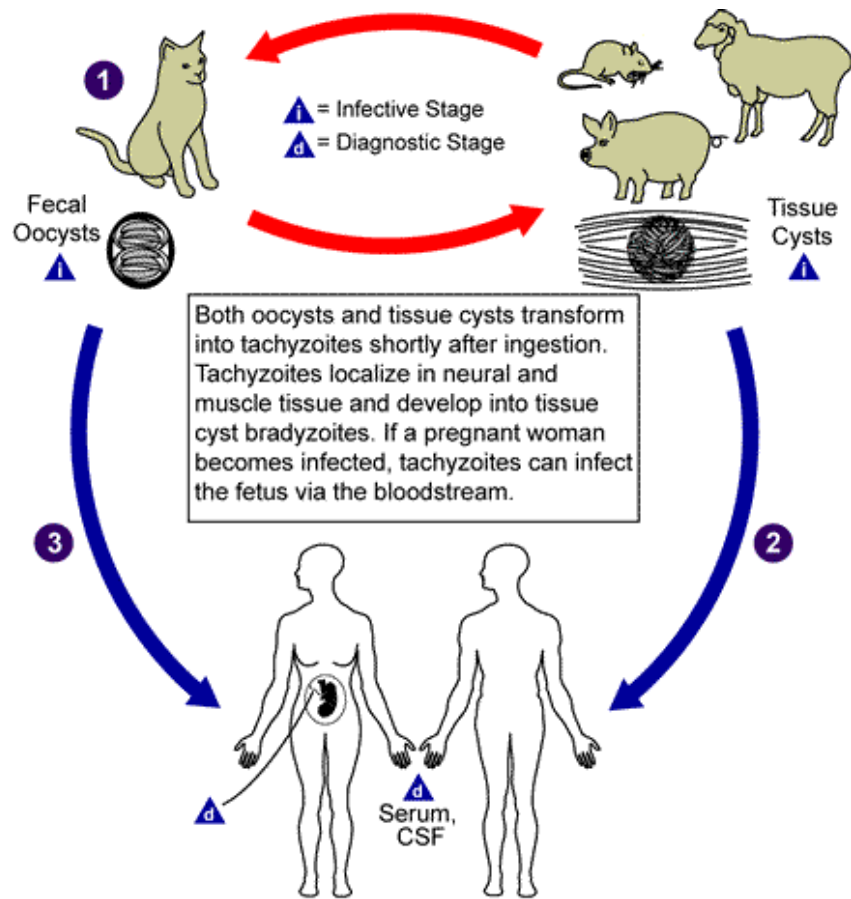
<http://brightbytes.com/phineasgaga>
Wilgus Collection







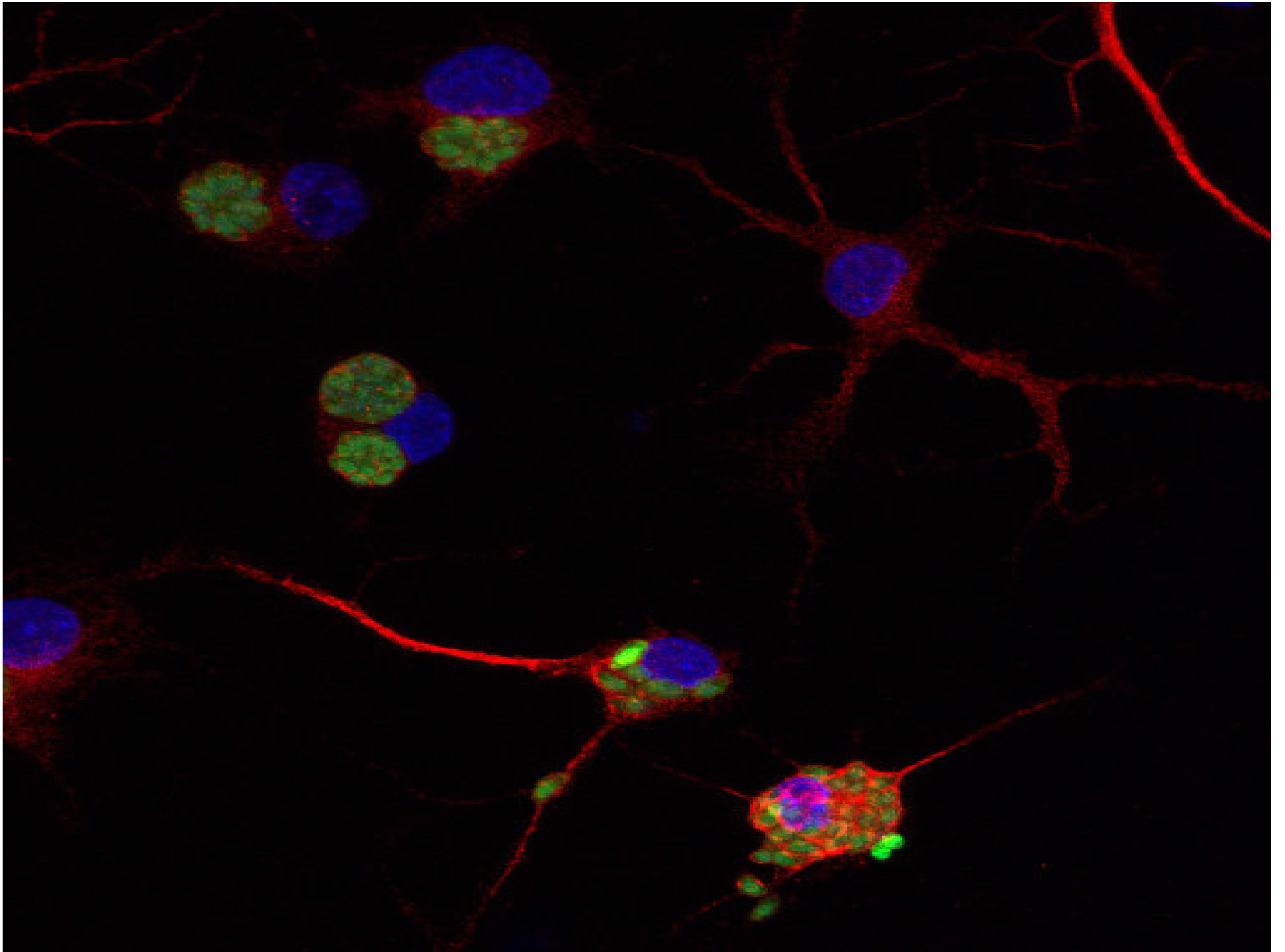


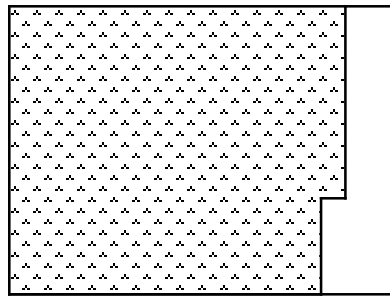


d Diagnostic Stage

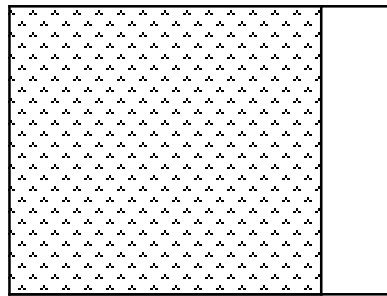
1) Serological diagnosis.
or
2) Direct identification of the parasite from peripheral blood, amniotic fluid, or in tissue sections.







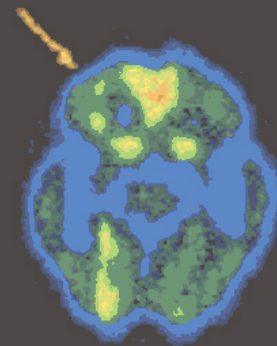
Before



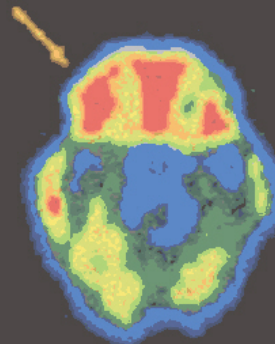
After



Obsessive Compulsive Disorder High Orbital Glucose Metabolism



Normal
Control



Obsessive
Compulsive



UCLA School of Medicine

Higher metabolic rate in OCD brain. Source:
[http://www.nimh.nih.gov/publicat/ocdbrain.h
tm](http://www.nimh.nih.gov/publicat/ocdbrain.htm)



Trichobezoar (hairball) From a
7-Year-Old Child





Acrotomophilia

Apotemnophilia



