



Visualize complex relationships between biological substances, cells, systems, and/or processes of the human body

1. select terms you wish to learn about
2. click submit and observe relations form!

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### Substance

#### Proteins

- ☐ actin
- ☐ myosin
- ☐ myoglobin
- ☐ hemoglobin
- ☐ melanopsin
- ☐ photoisomerase
- ☐ opsin
- ☐ collagen
- ☐ adiponectin
- ☐ tropoelastin
- ☐ elastin

#### Hormones

- Amine:
- ☐ insulin
  - ☐ oxytocin
  - ☐ cortisol
  - ☐ glucagon
  - ☐ neuroestrogen
- Peptide:
- ☐ progesterone
  - ☐ estrogen
  - ☐ testosterone
  - ☐ growth hormone (GH)
  - ☐ growth factor (GF)

#### Neurotransmitters

- ☐ dopamine
- ☐ serotonin
- ☐ norepinephrine
- ☐ epinephrine
- ☐ acetylcholine
- ☐ GABA
- ☐ catecholamine

### Structure

#### Biological Systems

- ☐ immune system
- ☐ limbic system
- ☐ circulatory system
- ☐ digestive system
- ☐ integumentary system
- ☐ lymphatic system

#### Tissues / Organ

- ☐ amygdala
- ☐ hypothalamus
- ☐ thalamus
- ☐ hippocampus
- ☐ pituitary gland
- ☐ adrenal gland
- ☐ pancreas
- ☐ acruate nucleus
- ☐ kidney
- ☐ blood vessels
- ☐ esophagus
- ☐ tumor

#### Cells

- ☐ lymphocyte
- ☐ native T cell
- ☐ helper T cell
- ☐ cytotoxic T cell
- ☐ activated T cell
- ☐ rested T cells
- ☐ spermatocyte
- ☐ leukocyte
- ☐ adipocyte
- ☐ neuron
- ☐ astrocyte
- ☐ stem cell

### Process

#### Bio-Phenomena

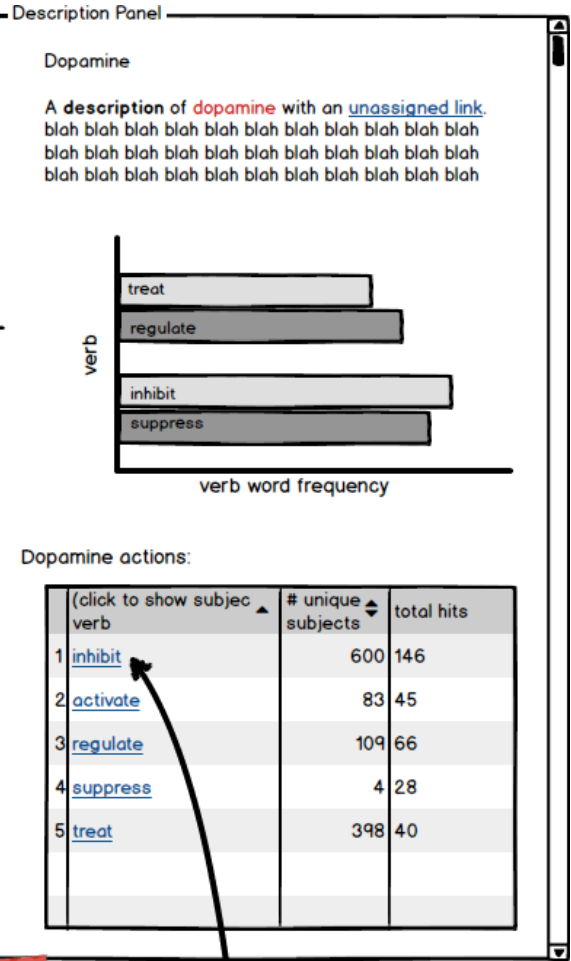
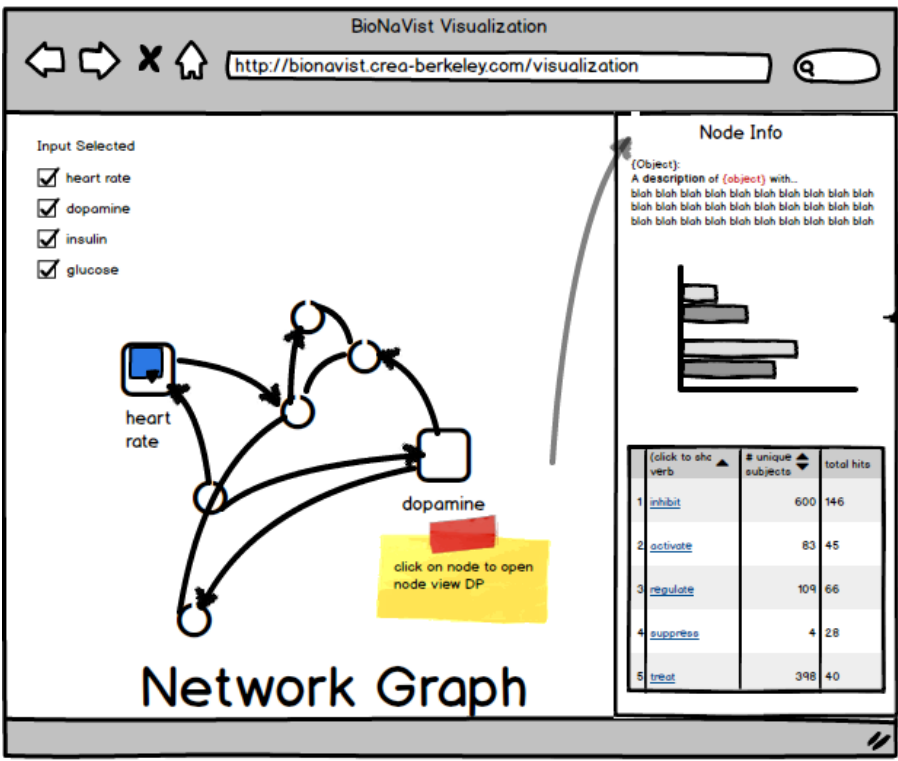
- ☐ apoptosis
- ☐ glyconeogenesis
- ☐ glycogenolysis
- ☐ glycolysis
- ☐ lipolysis
- ☐ embryogenesis
- ☐ hydrolysis
- ☐ Wnt signaling
- ☐ binding in cytosol
- ☐ cell growth
- ☐ mitosis
- ☐ meiosis

#### Physiological

- ☐ digestion
- ☐ metabolism
- ☐ heart rate
- ☐ vasodilation
- ☐ systolic blood pressure
- ☐ diastolic blood pressure
- Disease**
- ☐ cancer
- ☐ diabetes
- ☐ Parkinson's Disease
- ☐ Huntington's Disease

#### Cognitive

- ☐ memory
- ☐ attention
- ☐ arousal
- ☐ intelligence
- Other**
- ☐ light
- ☐ stress
- ☐ sleepiness
- ☐ arousal
- ☐ obesity
- ☐ hunger



Node (Noun):  
1. Substance  
2. Structure  
3. Process

Edge (Verb):

Types:

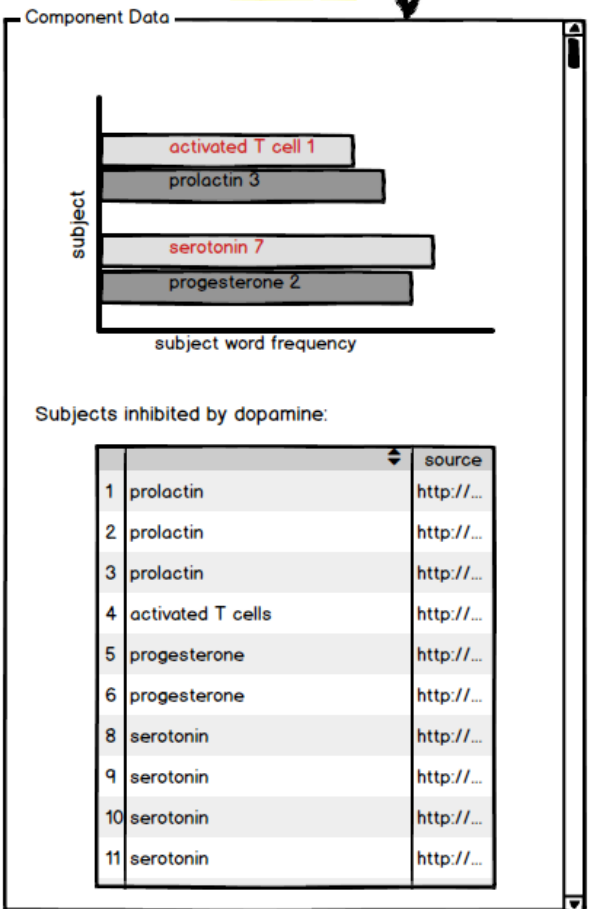
- on / off (digital)
  - activate / deactivate
- more / less (analog)
  - stimulate / inhibit
  - promote / suppress
  - increase / decrease
- open / close (mechanical)
  - release / block

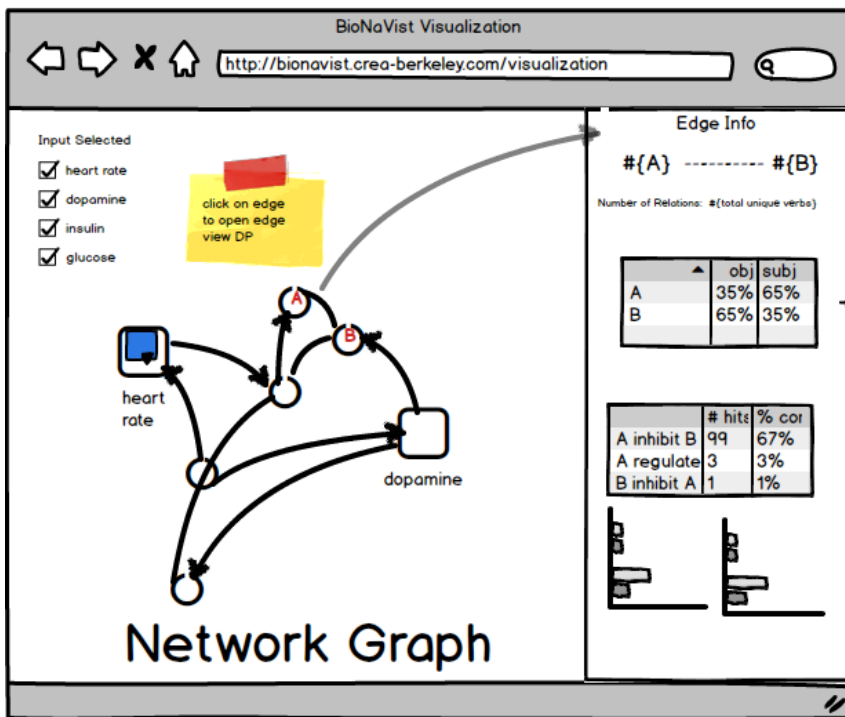
clicking on [verb](#) will open component screen showing all subjects acted on by dopamine

{object = nodeName} #{acts} on [subject](#)  
i.e. DOPAMINE inhibits [subject](#)

- the node is the "doer"
- total k for component table = # hits for an nth verb in verbs table

I decided it's best to leave out data to display data about the node as an "object" in a relation (object predicate subject) and leave out data about it as a subject (at least for the conference).





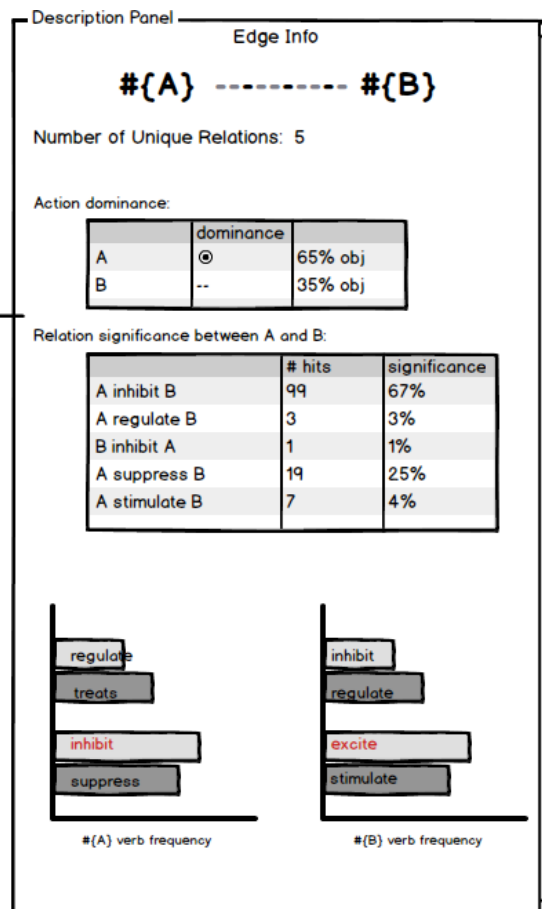
Node (Noun):

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Edge (Verb):

Example Types:

1. on / off (digital)
  - activate / deactivate
2. more / less (analog)
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  - promote / suppress
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3. open / close (mechanical)
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Can add more features below

- Significance of "A inhibit B" to A and B

Purpose: Provide overview of relationship between A and B:

- Action dominance (% object) in a relation (obj --> subj)
- Significance of interaction between two nodes
- Node Action Tendency (i.e. A has highest verb frequency for "inhibit", might be primarily inhibitory molecule)

(significance) is based off # hits / total relations extracted (sum of # hits)

Frequency histograms come from "Node Info" for individual nodes, A + B

- Include to provide compare / contrast Node Action Tendency