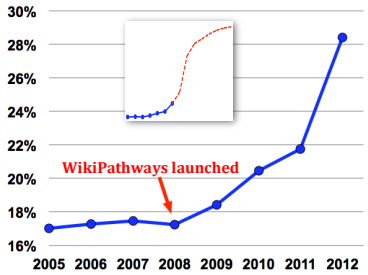
Project K - Alex Pico

WikiPathways.org = *Pathways for the People*

We are capturing pathway knowledge from all corners of biomedical research on a scale never attempted before. Drawn by hand and backed by databases, our pathway models are both human readable (like familiar textbook pathways) and computer readable (for large-scale omics analysis). We are entering a new phase of growth and are actively engaging researchers, teachers, publishers and communities interested in *how biology connects*.

Meaningful connections to BIOLOGY

WikiPathways is a tool for drawing pathway models, connecting the ultimate *parts list* of genes, RNA, proteins, metabolites and drugs. It's an *evolving* collection constantly growing, mutating and becoming more specialized. In terms of basic genomic coverage, we are currently at the beginning of a growth curve that could take many shapes. We can also represent more diversity for a given process, including disease, condition or even patient-specific models. *We need to reach out to multiple communities to capture the pathway knowledge currently sequestered in static figures, databases, and the heads of researchers.*



Meaningful connections to DATA

WikiPathways is a pathway database, connecting biological entities to standardized identifiers, ontologies and semantic resources. These connections allow researchers to perform high-throughput data visualization and analysis. We provide interfaces for other software tools to use our open access content. We also defined the semantics of our models to allow meaningful mappings to data and other resources. *We need to reach out to high priority target resources and community standards to make our model maximally useful to biomedical research efforts.*

Meaningful connections to PEOPLE

WikiPathways is a public resource, connecting researchers, students and patients to advanced biological concepts through intuitive pathway models. We are proud of our role as an open source and open access project, dedicated to serving research efforts, as well as educational goals. We have just begun to nucleate pathway curation centers around the world. And we reach 50,000 viewers PER DAY via our Wikipedia maps. *We need to do more to empower people to not only access, but also interact, contribute and take ownership of -- what is ultimately -- their data.*

Sage Congress Goals

To brainstorm *and act* on ways to better connect pathway modeling resources. Here are some initial ideas to stimulate discussion:

- Engage research communities (competitions; *Bridge*)
- Activate patient outreach (portals; *Wikipedia*; advocacy group websites)
- Capture useful network models (publishers; microattribution; *Synapse*)
- Make models more accessible for data overlay and analysis (*Synapse*)

Over to You

K- WikiPathways.org -- Pathways for the People

G	Organization	Last name	First
K	Cincinnati Childrens	Aronow	Bruce
K	Broad Institute	Basu	Amrita
K	Columbia	Cheng	Wei-Yi
K	University of Oklahoma	Droegemeier	Kelvin
K	eTRIKS	Emam	Ibrahim
K	Maastricht University, NL	Evelo	Chris
K	Boehringer Ingelheim	Freeman	Thomas
K	Microsoft	Gannon	Dennis
K	H3 Biomedicine	Gerken	Andrea
K-Anchor	Sage Bionetworks	Hodgson	Jay
K	Discovery Biosciences	Hunkapiller	Tim
K-Anchor	Sage Bionetworks	Jang	In Sock
K	Sanofi-Aventis	Jenkins	Robin
K	Cornell	Mason	Chris
K-Lead	Gladstone Institute	Pico	Alex
K	National Science Foundation	Rigas	Marc
K	Duke University	Tenenbaum	Jessie
K	Sanford Health	Willis	Scooter
K	Stanford	Wu	Joseph
K	H3 Biomedicine	Yu	Lihua

WikiPathways
Alex Pico, Gladstone Institutes

Project Overview- Major Themes

1. Crowdsourcing Pathway Knowledge
2. Using Pathway Models for Research
3. Using Pathways for Education

Potential alignment with existing Commons' approaches, Project K

Input:

- Reactome, Wormbase, Portals, OpenPHACTS
- From popular research platforms
- Enhancing partnerships

Output:

- Open access journals, specialized journal sections
- Wikipedia articles
- Webservice and semantic web output for integration in tools, websites, and platforms *(like Synapse!)*

Unmet needs and issues

- Focus on reuse
- Common content for cell types & diseases
- Workbenches and pipelines, allowing connections between tools (e.g. PathVisioRPC, Eclipse, Synapse)
- Community connections
  - tool development
  - highlighting research fields
  - education channels
  - patient interest groups

1-year vision for the future of this project

1. Trail dataset visualization
2. Ontology connections to organize
3. High-value targets for curation:
   a. Phenotype/Disease associated
   b. search results (power of crowd)
4. Education and outreach
   a. Khan Academy (high-quality content)
   b. Genetic Alliance (connect patients)

(year-2: google glass view of live pathways in people)