



# Research Recommender Systems

Jeff Horon, Elsevier, Inc. – VIVO Conference 2012

*Who* should know *who*?  
And *why*?

# Research Recommender Systems

Passive  Active

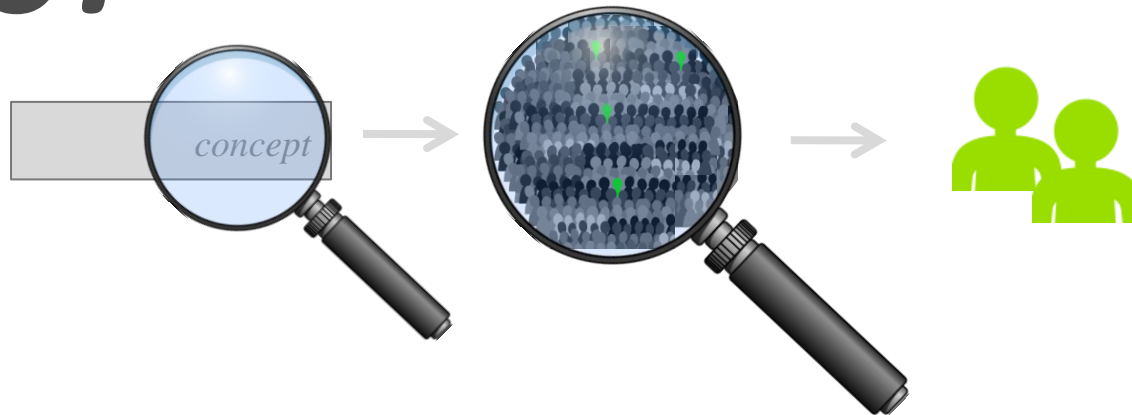
# Research Recommender Systems

Passive



Active

## *Who?*



Passive



Active

*Why?*



# How does the Elsevier Fingerprint Engine work?

① Mine Text



② Identify Concepts



- MeSH
- Compendex
- GeoTree
- GESIS
- and more

③ Create Document Fingerprint

## Disorders

Uterine Cervical Neoplasms  
Neoplasms

Breast Neoplasms

## Chemicals & Drugs

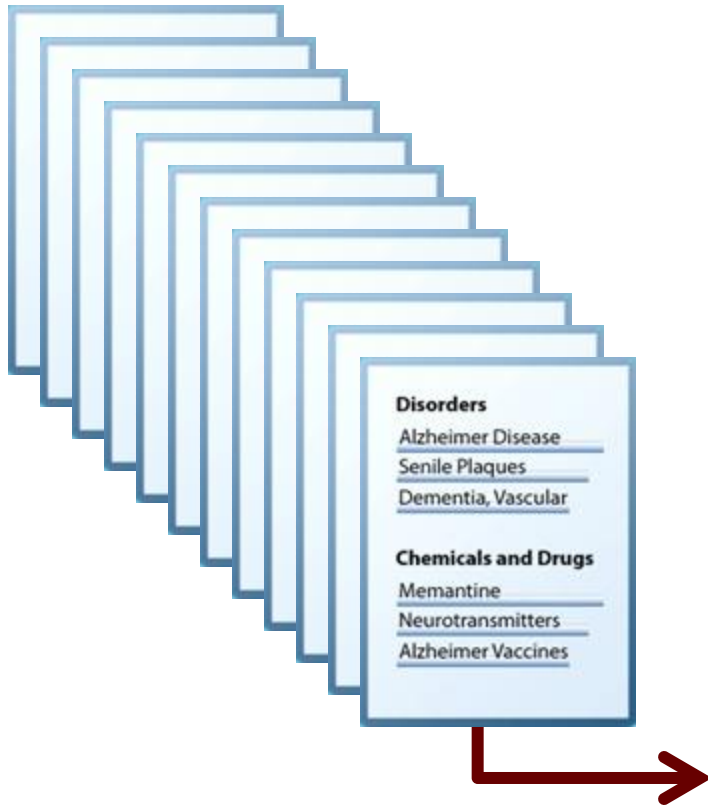
Biological Tumor Markers

Papillomavirus Vaccines

Aspirin



# Creating a researcher's Fingerprint



Generate a researcher's unique Fingerprint by aggregating the Fingerprints of each of their publication abstracts

**Profile**

All of the publications and grants associated with this researcher have been analyzed to determine the researcher's expertise and experience. Blue lines signify expertise demonstrated within grants - with the length indicating the prevalence or significance of expertise.

Based on:

Combined Profile  Publications  Grants

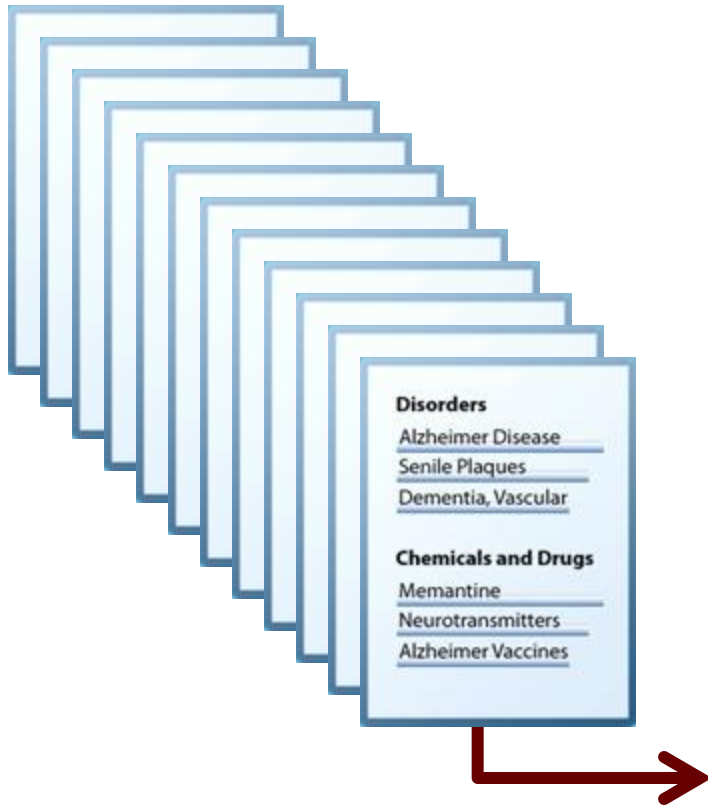
**Disorders**

- [Uterine Cervical Neoplasms](#)
- [Colorectal Neoplasms](#)
- [Cervical Intraepithelial Neo...](#)
- [Papillomavirus Infections](#)
- [Neoplasms](#)
- [Prostatic Neoplasms](#)
- [Breast Neoplasms](#)
- [Tumor Virus Infections](#)
- [Uterine Cervical Dysplasia](#)
- [Uterine Cervical Diseases](#)
- [Colonic Neoplasms](#)
- [Adenoma](#)
- [Colonic Polyps](#)

**Case-Control Studies**

- [Medical Audit](#)
- [Mammography](#)
- [Routine Diagnostic Tests](#)
- [Clinical Protocols](#)
- [Vaccination](#)
- [Occult Blood](#)
- [Needle Biopsy](#)
- [Sigmoidoscopy](#)
- [Fat-Restricted Diet](#)
- [Education](#)
- [Community-Based Participator...](#)
- [Double-Blind Method](#)
- [High Pressure Liquid Chromat...](#)

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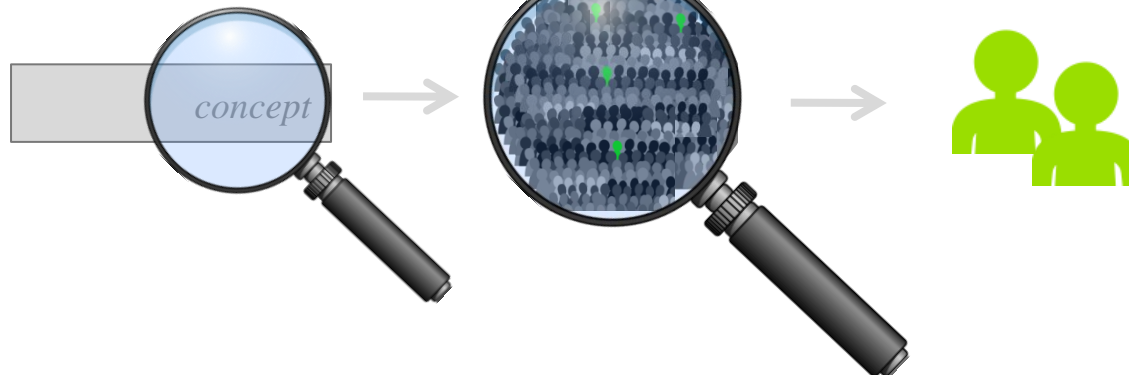
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# Who?



# Searching for multiple concepts

## Find the Expert

Mitochondria are cytoplasmic organelles that perform many crucial functions in eukaryotic cells, among them generation of most cellular ATP. Mitochondrial dysfunction is implicated in diverse pathologies such as type 2 diabetes, sarcopenia, neurodegeneration, and cancer. Despite their central importance to human health, mechanisms by which mitochondrial functions are regulated remain incompletely understood. The rationale for this application is that improved insights into such mechanisms may permit development of therapeutics to modulate mitochondrial functions as treatments for a wide variety of human diseases. This application focuses on novel roles for sirtuin proteins in regulating key mitochondrial functions. Sirtuins are a family of deacetylases that promote increased longevity in invertebrate models and modulate diverse processes in mammals. The application is based on two novel observations. First, the mitochondrial sirtuin SIRT5 plays a hitherto undescribed role in deacetylating and suppressing activity of Pyruvate Dehydrogenase Complex (PDC), a mitochondrial holoenzyme with a major role in regulating glucose oxidation in mammalian cells. PDC dysfunction is implicated in type 2 diabetes, cancer, and cardiac ischemia. Novel means of stimulating PDC activity - as by SIRT5 inhibition - would be beneficial in these and other clinical settings. Second, the sirtuin SIRT6 has an unexpected role in stimulating mitochondrial respiration. Adipose tissue- specific SIRT6 knockout (S6AKO) mice show marked adiposity, potentially due in part to mitochondrial respiratory defects in brown adipose tissue (BAT). The overall objective of this application is to elucidate novel mechanisms of mitochondrial regulation by sirtuin proteins, thus addressing a key knowledge gap in mitochondrial biology. The hypotheses of this application are two-fold. The first hypothesis is that SIRT5 inhibits glucose oxidation by attenuating PDC activity. The

By Concept By Last Name **By Free Text**

## Select Vocabulary for Analysis

Depending on the selected vocabulary your search will bring up the appropriate results.

- Arts and Humanities
- Business and Economics
- Engineering
- Geosciences
- Medicine and Life Sciences
- Social Sciences

Find

## 50 Experts found

Internal	Community	National Network
Save search result		
	Publications	H-Index
David Lombard Medical School, Pathology Department	36	24
Alan R. Saltiel Life Sciences Institute, Life Sciences I...	246	65
Lazar J Greenfield Medical School, Surgery	408	43
John A Faulkner Medical School, Molec and Integrative Ph...	217	45
James M Balter Medical School, Radiation Oncology	110	35
Louis G D'Alecy Medical School, Molec and Integrative Ph...	139	21
Philip C Andrews	163	35

## Fingerprint

Rating weight: Low Mid High Required

Pyruvate Dehydrogenase Complex	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Sirtuins	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
National Institute of General Medical Sciences (U.S.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Respiration	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Adipose Tissue, Brown	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Adiposity	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Mitochondria	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Organelles	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Sarcopenia	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Holoenzymes	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Heart Neoplasms	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Missions and Missionaries	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Eukaryotic Cells	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>
Invertebrates	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="button" value="remove"/>

Passive ←————→ Active

***Users ‘bring  
the why’***

Passive



Active

***Users bring a  
general interest  
in collaboration***

# SciVal Experts 'Similar Experts' Feature

## 18 Similar Experts

By using the profile that has been created for this researcher, this page computes what similar experts in the institution have a matching profile. By clicking the [+] next to each researcher, suggested overlapping publications by the similar expert will appear that match the profile of this researcher.

### Coauthors

Publications

<a href="#">+</a> David O Ferguson Medical School, Pathology Department	44	
<a href="#">+</a> Joann Sekiguchi Medical School, Internal Medicine	58	
<a href="#">+</a> Richard A Miller Medical School, Pathology Department	307	

### Non-Coauthors

Publications

<a href="#">+</a> Yang Liu Medical School, Surgery	155	
<a href="#">+</a> Pan Zheng Medical School, Surgery	110	
<a href="#">+</a> David A Fox Medical School, Internal Medicine	136	



# SciVal Experts 'Similar Experts' Feature

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By using the profile that has the most similar profile. By clicking the [+] icon next to the profile of this researcher,

### Coauthors

+ David O Ferguson  
Medical School, Pathology

+ Joann Sekiguchi  
Medical School, Internal Medicine

+ Richard A Miller  
Medical School, Pathology

### Non-Coauthors

+ Yang Liu  
Medical School, Surgery

+ Pan Zheng  
Medical School, Surgery

+ David A Fox  
Medical School, Internal Medicine



### Non-Coauthors

Publications

- Yang Liu  
Medical School, Surgery  
155
- Yan Wu; Yong Guo; Andy Huang; Pan Zheng; Yang Liu  
**CTLA-4-B7 interaction is sufficient to costimulate T cell clonal expansion**  
Journal of Experimental Medicine 1997;185(7):1327-1335.
- Y. Guo; Y. Wu; X. Kong; Y. Liu  
**Identification of conserved amino acids in murine B7-1IgV domain critical for CTLA4/CD28:B7 interaction by site-directed mutagenesis: A novel structural model of the binding site**  
Molecular Immunology 1998;35(4):215-225.
- X.-F. Bai; J. Bender; J. Liu; H. Zhang; Y. Wang; O. Li; P. Du; P. Zheng; Y. Liu  
**Local costimulation reinvigorates tumor-specific cytolytic T lymphocytes for experimental therapy in mice with large tumor burdens**  
Journal of Immunology 2001;167(7):3936-3943.
- Yong Guo; Yan Wu; Min Zhao; Xiang-Peng Kong; Yang Liu  
**Mutational analysis and an alternatively spliced product of B7 defines its CD28/CTLA4-binding site on immunoglobulin C-like domain**  
Journal of Experimental Medicine 1995;181(4):1345-1355.
- Xue-Feng Bai; Jinqing Liu; Kenneth F. May Jr.; Yong Guo; Pan Zheng; Yang Liu  
**B7-CTLA4 interaction promotes cognate destruction of tumor cells by cytotoxic T lymphocytes in vivo**  
Blood 2002;99(8):2880-2889.
- Y. Liu; B. Jones; A. Aruffo; K.M. Sullivan; P.S. Linsley; C.A. Janeway Jr.  
**Heat-stable antigen is a costimulatory molecule for CD4 T cell growth**  
Journal of Experimental Medicine 1992;175(2):437-445.
- Kenneth F. May Jr.; Xing Chang; Huiming Zhang; Kenneth D. Lute; Penghui Zhou; Ergun Kocak; Pan Zheng; Yang Liu  
**B7-deficient autoreactive T cells are highly susceptible to suppression by CD4<sup>+</sup>CD25<sup>+</sup> regulatory T cells**  
Journal of Immunology 2007;178(3):1542-1552.

# Research Recommender Systems

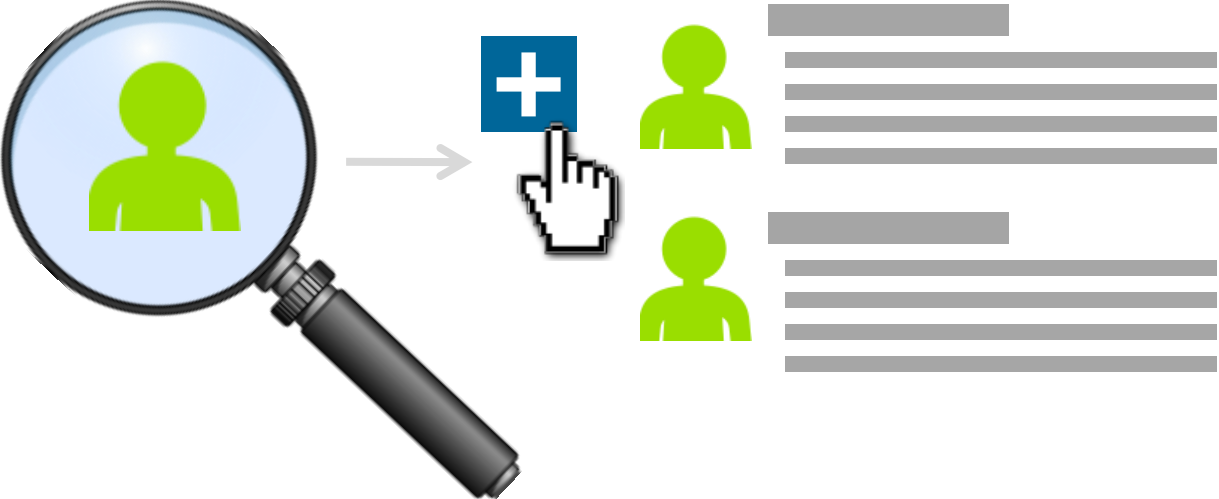
Passive



Active

*'My work'*

*Why?*



Passive  Active

***-New faculty***

***-Junior faculty***

***-Early adopters***



# SciVal Experts + Funding Integration

## **Pancreatic Cancer**

Gateway for Cancer Research

Type: Research Grants

Announcement Number: Not Available

SciVal Funding Classification: Medicine





No amount specified

Deadline: Not Specified


### **Description**

### **Suggested Collaborators**

[See all suggested collaborators >](#)

	<b>Publications</b>	<b>H-Index</b>
  Fudan University Shanghai Cancer Center, Pancreas & Hepatobiliary Surgery	26 	8
  MD Anderson, Gastrointestinal (GI) Medical Oncology	15 	7
  Yonsei University College of Medicine, Yonsei University Health System, Gastroenterology	138 	20

### Follow-Up

 Save as a bookmark

 Open in Scival Funding

Interested in collaboration

Interested in applying

Not interested

### **Matched concepts**

Neoplasms

Pancreatic Neoplasms

# SciVal Experts + Funding Integration

## Pancreatic Cancer

Gateway for Cancer Res:  
Type: Research Grants  
Announcement Number:  
SciVal Funding Classifica

### Description

### Suggested Collabora

   
Fudan Univer Shanghai  
Surgery

   
MD Anderson, Gastrointestinal (GI) Medical Oncology

   
Yonsei University College of Medicine, Yonsei University Health  
System, Gastroenterology

Hi, 

 would like to contact you about a funding opportunity

Type your message here

### Pancreatic Cancer

Gateway for Cancer Research



20 

7

15 

20

138 

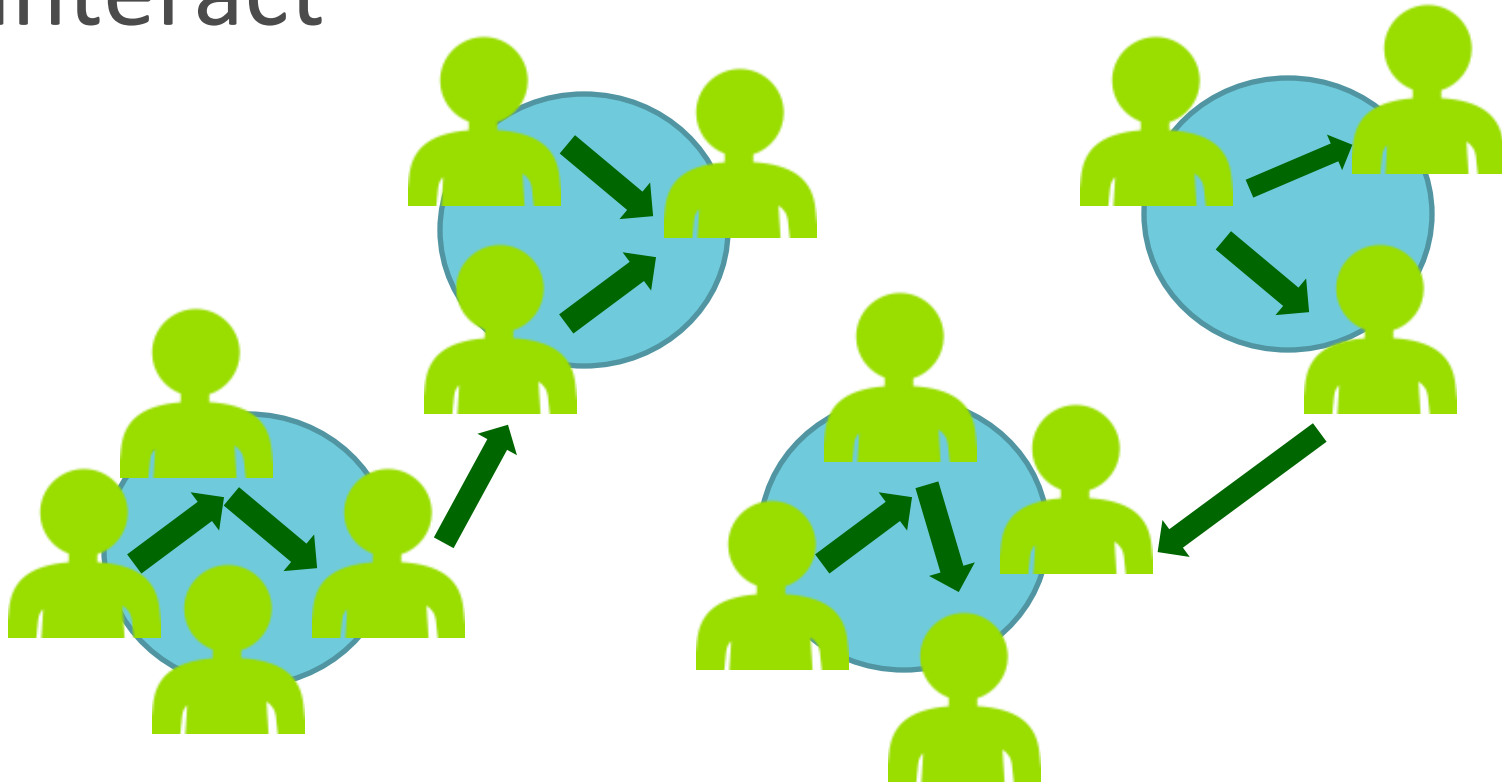
Passive



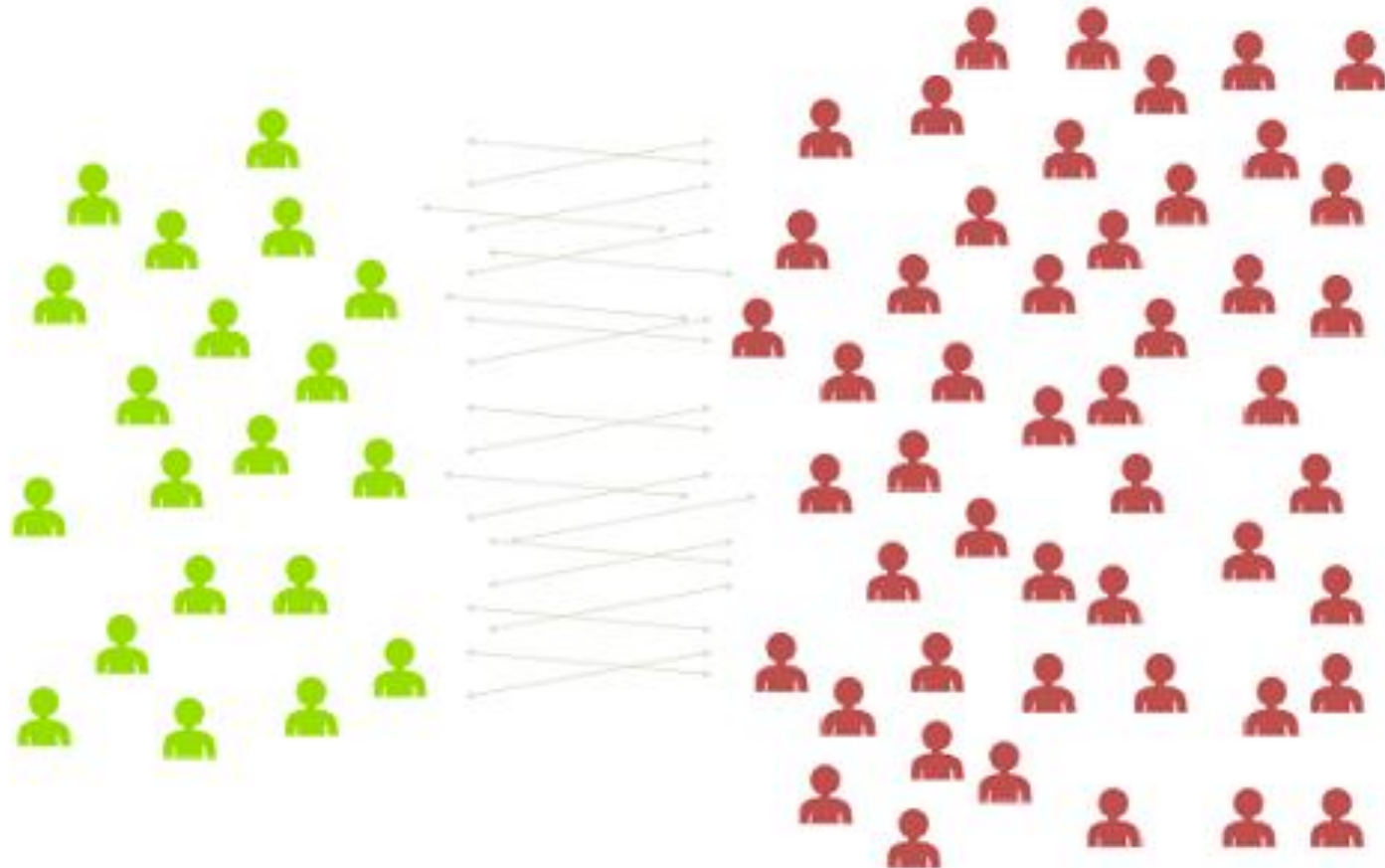
Active

*Senior faculty-  
Late adopters-*

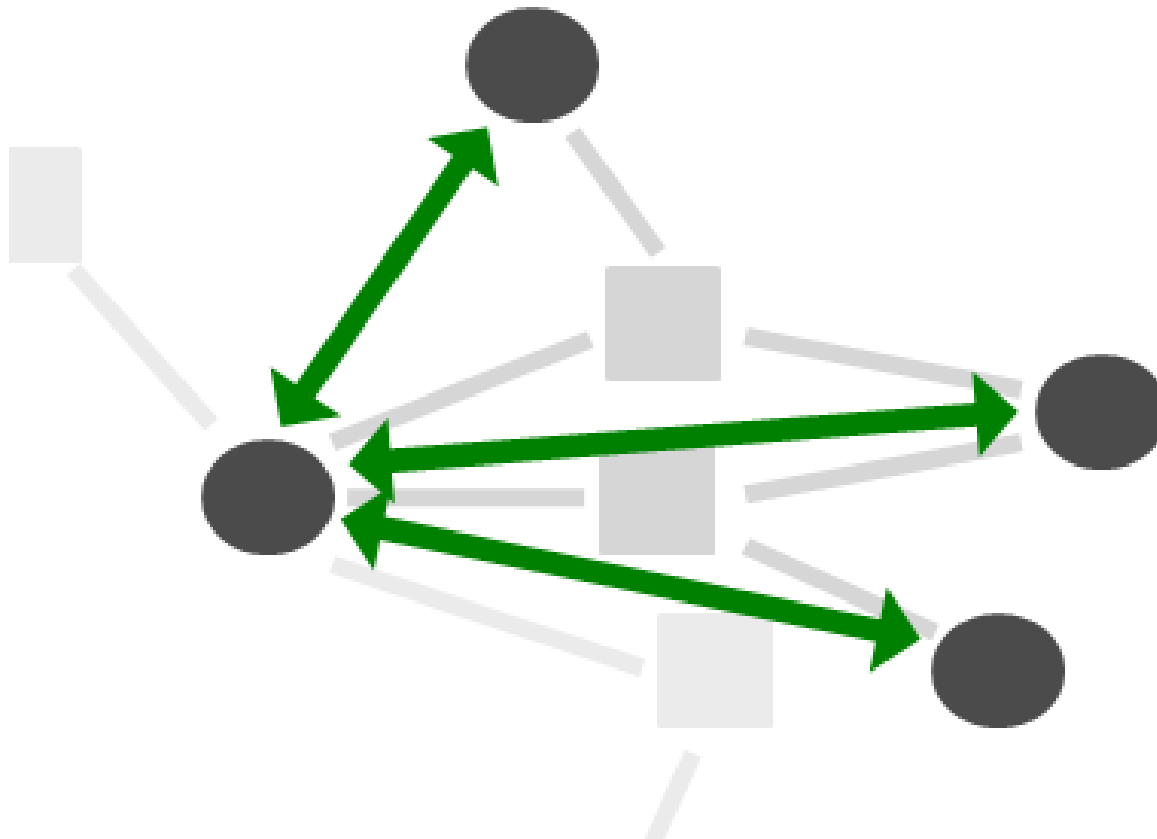
Assigned tables to maximize the chances strong matches would interact



## Matched 20 mentor-mentee dyads



# Assembled P30 teams



## Global conference

Indicate interests

A

B

C

Indicate methodological expertise/needs

Method	Can Provide	Need	Not Interested
D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Targeted recommendations

Hello \_\_\_\_\_,

... based upon survey responses, we would like to suggest that you meet:

Name: \_\_\_\_\_

Institution: \_\_\_\_\_

Can provide expertise in: Cancer Survivorship

Seeks an expert in: Global Clinical Trials Research, Immunotherapy/Vaccines, New Drugs Research and Development, Personalized Medicine

Shares a common interest in: Lymphoma



Passive  Active

***Match recommender  
functionality to who /  
what questions, audience***

<http://jeffhoron.com>