InterMine & MODs

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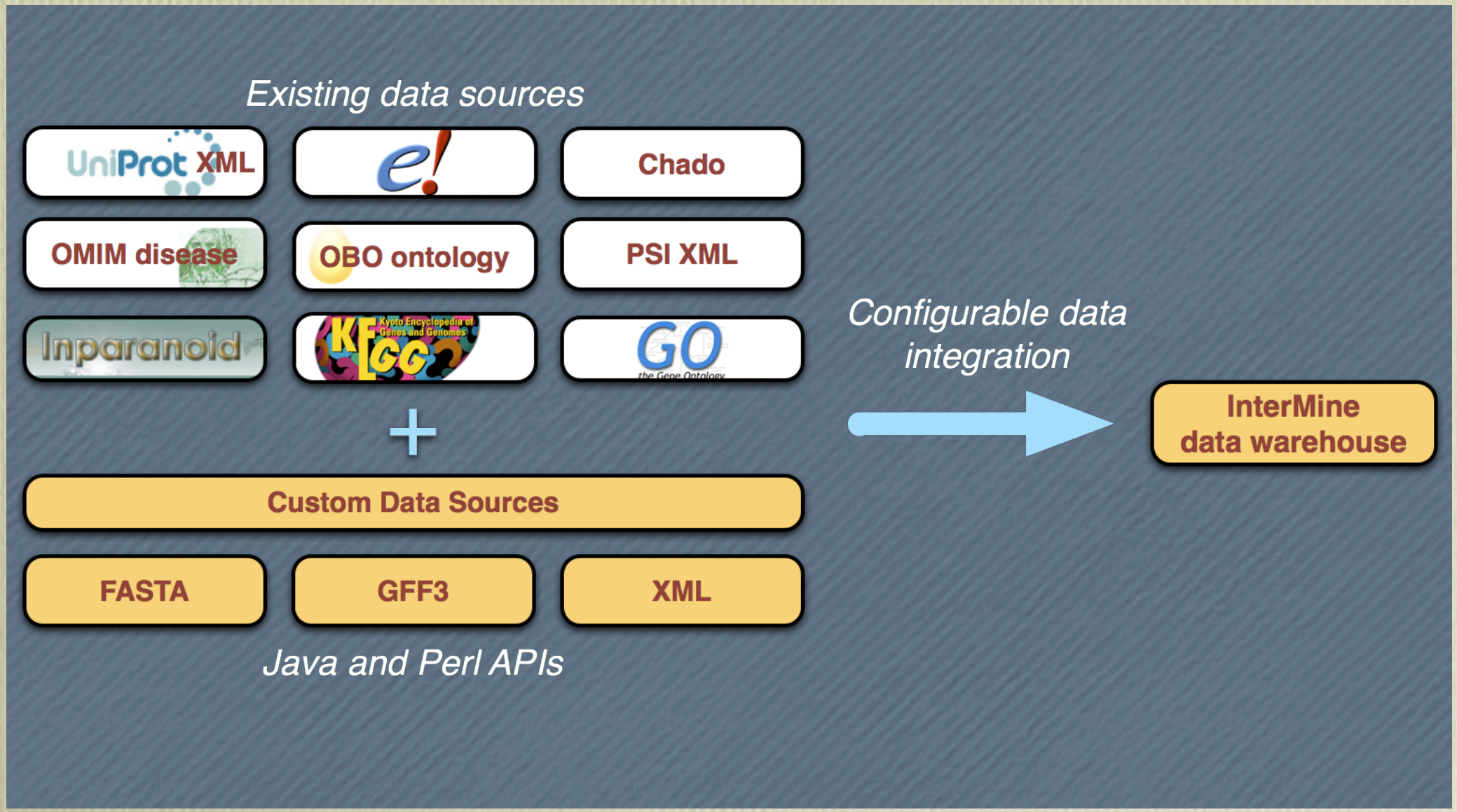
www.intermine.org

InterMine

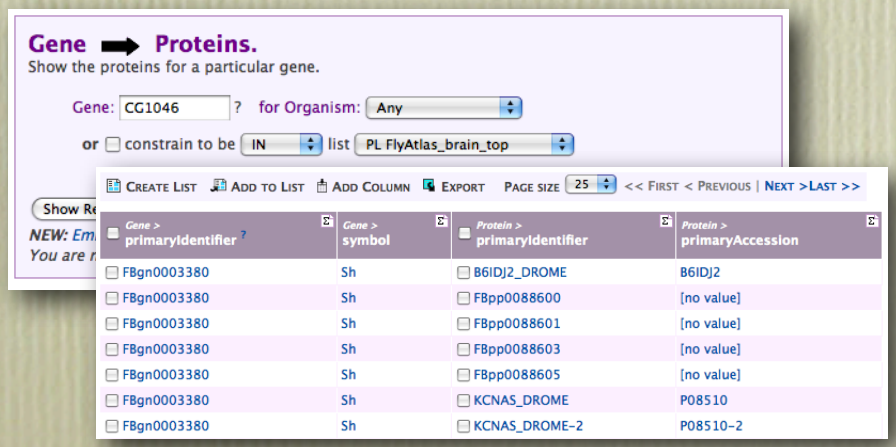
- data integration
- query-optimised data warehouse
- works with any data model
- flexible web interface
- web services

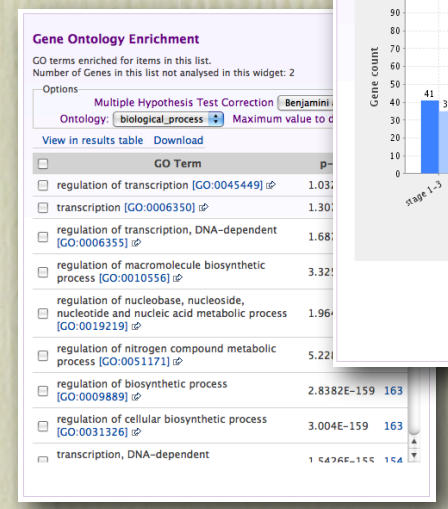
Data Integration

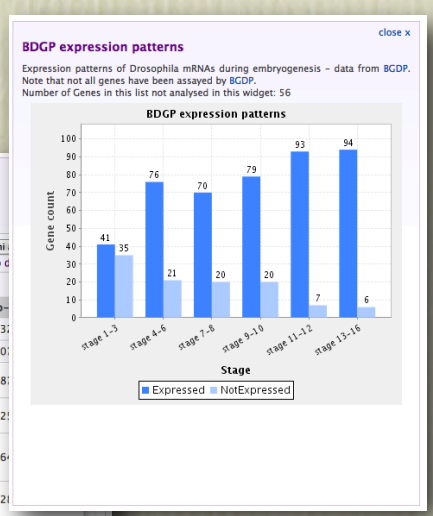


Web Interface

- **Template queries** - pre-defined queries
- **QueryBuilder** - custom queries, advanced
- **Report pages** - configurable, templates
- **Lists** - upload, use in queries, analysis widgets
- **Export**
- **Search**







New Features

- report page update
- region search
- better galaxy integration
- expanded web services
- new results tables (soon)

InterMOD

Yeast

Worm

Mouse

Zebrafish

Rat

InterMine

FlyMine

3 years funding, thanks NHGRI!

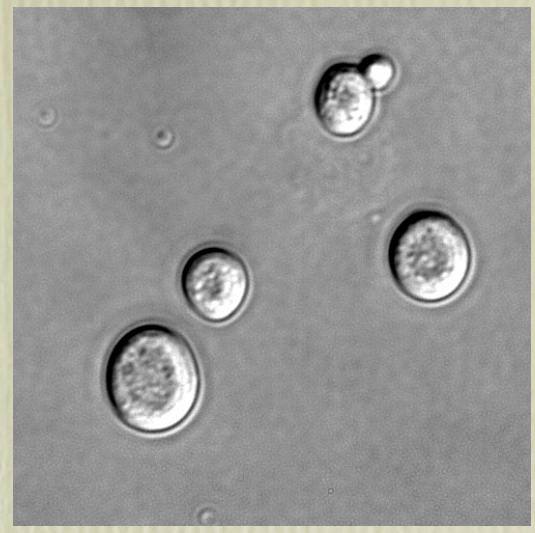
InterMOD

Julie Sullivan

Alex Kalderimis

Progress

SGD
LIKE
LATER
SHARE
EMBED
YeastMine is Awesome!
01:04



Orthologues

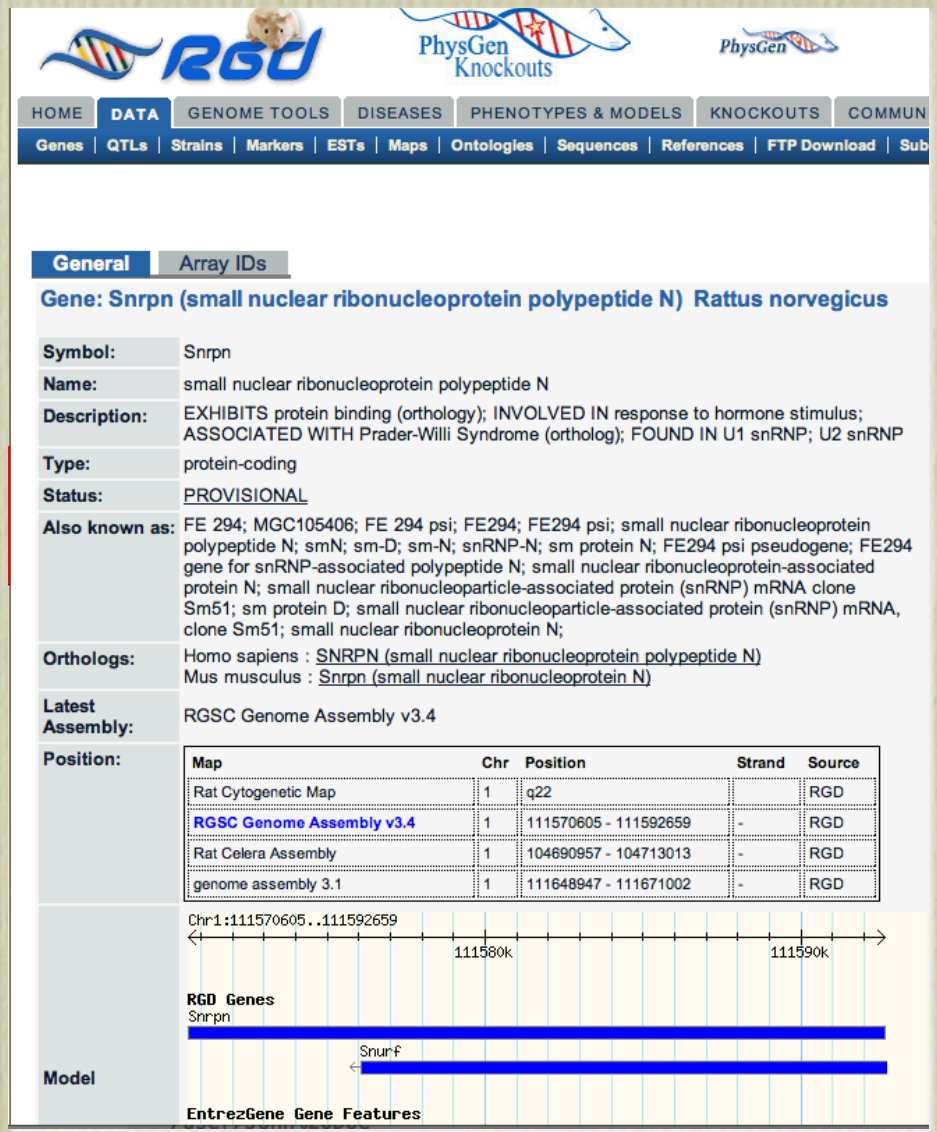
Protein domains

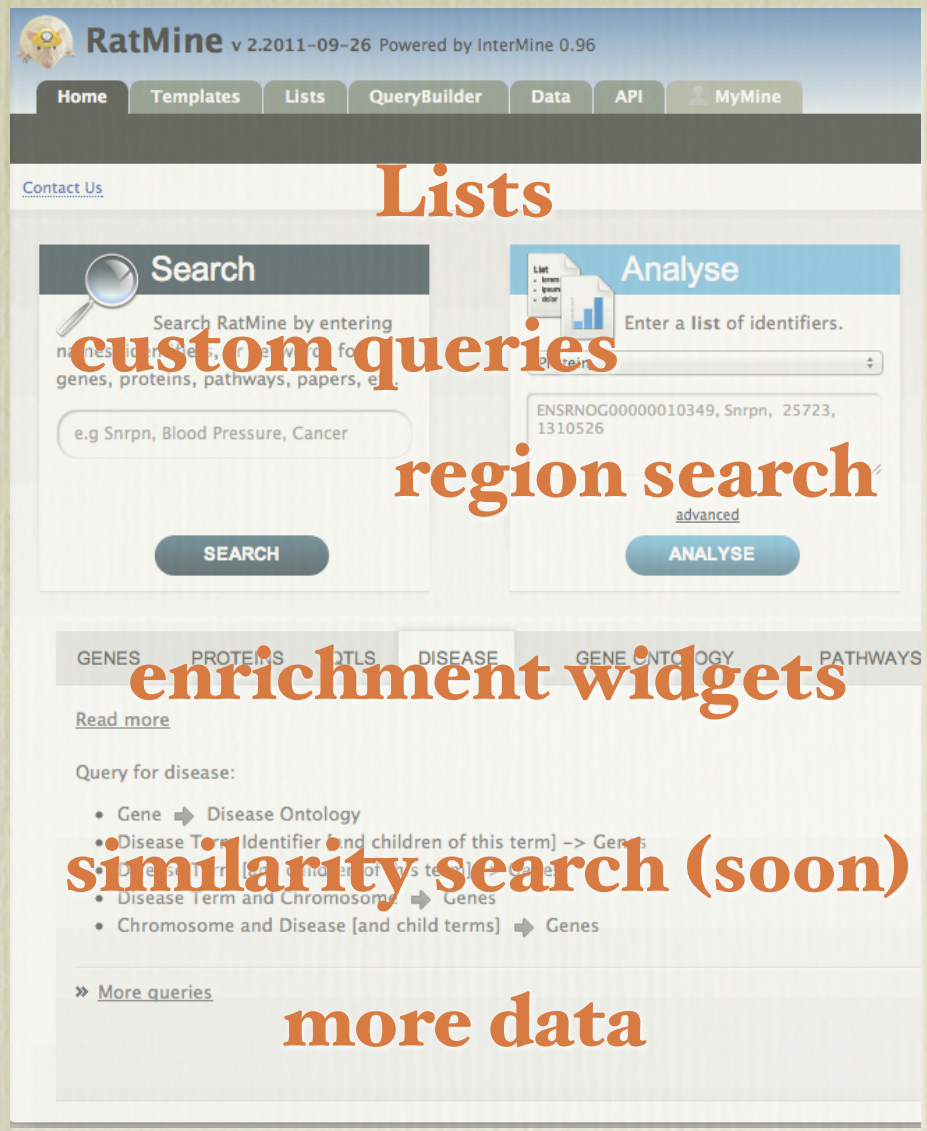
Pathways

Gene Ontology

Images from Wikipedia and RGD

Demo





Lists

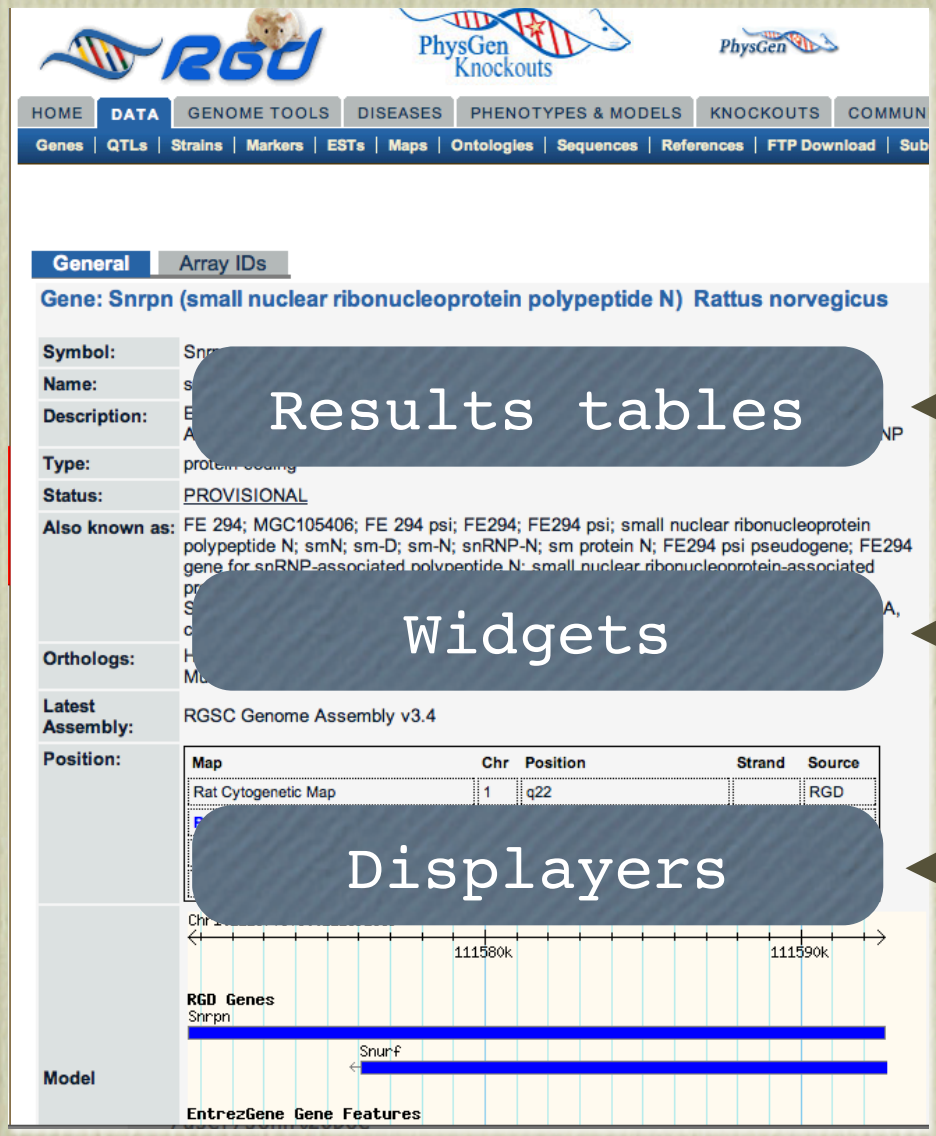
custom queries

region search

enrichment widgets

similarity search (soon)

more data



Results tables

Widgets

Displayers

Lists

custom queries

region search

enrichment widgets

similarity search (soon)

more data

Template query embed links....

The plan

- Delete existing webapp
  - Java/JSP - old and slow to develop
- All functionality as web services
- Key components as JavaScript
- Lightweight new webapp

Web Services

```
PathQuery q = new PathQuery(model);

q.setView("Protein.primaryIdentifier,
          Protein.genes.primaryIdentifier");

q.addConstraint("Protein.proteinDomains.name",
                Constraints.eq("Homeobox"));
q.addConstraint("Protein.organism.shortName",
                Constraints.eq("D. melanogaster"));
```

Perl, Python, Java, Ruby APIs

XML & JSON

Result formats

JSON
(objects)

JSON
(rows)

JSONP

FASTA

TSV

BED

GFF3

CSV

- MODs maintain data
- regular releases (weekly)
- similar data models
- powerful web services

SGD
WormBase
RGD
MGI

mash ups

Crossmodel.organism

...query model organism data

Crossmodel.organism ...query model organism data

1. users can query across model organisms

2. InterMine API demos for developers

Demo

Caching

1. Query results are cached in the InterMine server

2. Each Mine has a release number:

```
yeastmine.org/service/release
```

if the number is the same no data has changed.

Easy to add local caches and check version numbers.

Why is this useful

- Data integration is hard
  - resolution of ids, old ids, update schedules
- Problems with stale data
- Small databases can present more data without local storage

Conclusion

- MODs maintain data
- InterMine provides query software
  - focus on performance
- Bioinformaticians build webapps!
  - easy to attach to multiple MODs

InterMine Team

Biologists	Rachel Lyne, Adrian Carr, Mike Lyne
Developers	Sergio Contrino, Julie Sullivan, Alex Kalderimis, Fengyuan Hu, Daniela Butano, Radek Stepan, Richard Smith
Sys Admin	Dan Tomlinson
PI	**Gos Micklem**

MODs

RGD	**Andrew Vallejos**, Elizabeth Worthey, (Simon Twigger)
SGD	**Kalpana Karra**, Ben Hitz, Gail Binkley, Mike Cherry
ZFIN	**Sierra Taylor**, Judy Blake, Nathan Dunn, Monte Westerfield
MGI	(Michael O'Keefe), Joel Richardson
WormBase	Todd Harris, Lincoln Stein

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