



# Addgene

The Nonprofit Plasmid Repository


Joanne Kamens, PhD  
Executive Director

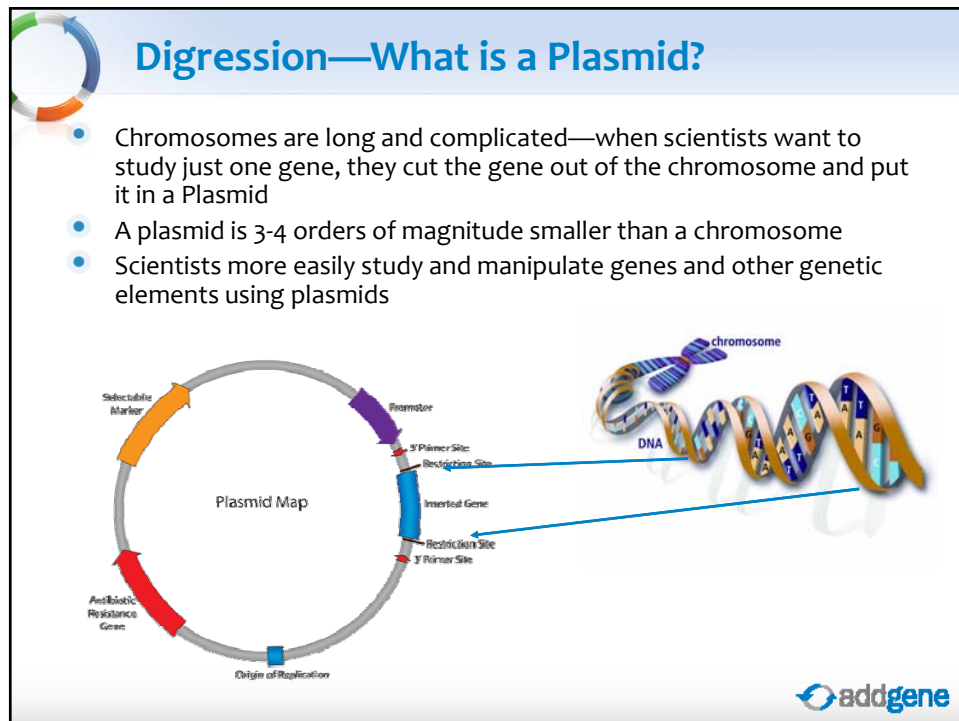
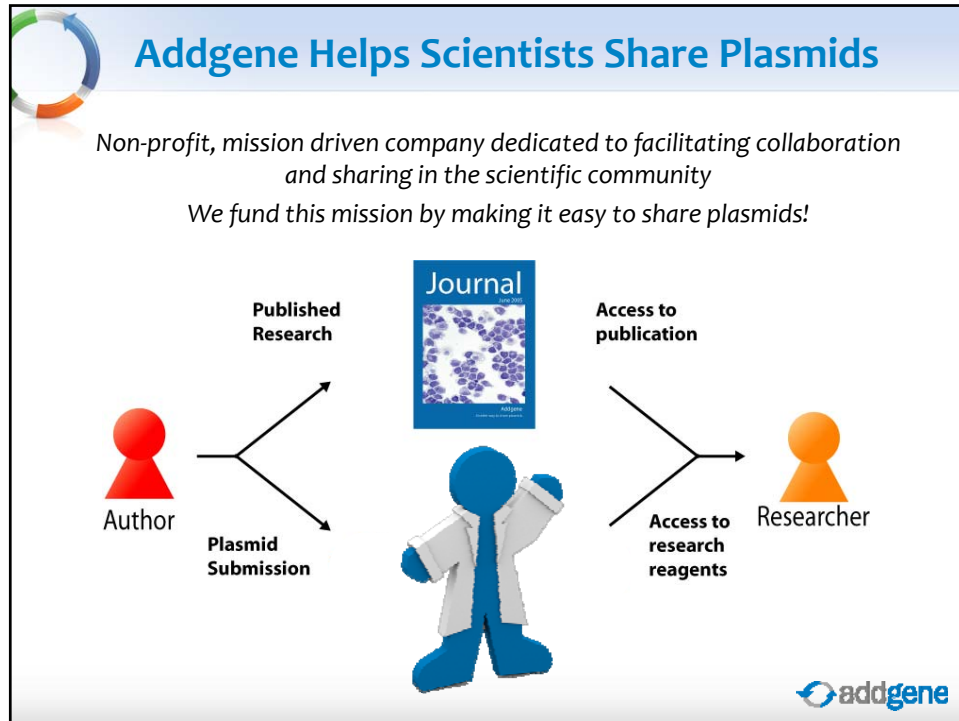



## Addgene's Mission

Accelerate research and discovery by  
increasing collaboration and improving access  
to useful research materials and information

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## Challenges in Sustaining Collections

From the Ecological Society of America, Living Stocks Collection Workshop 2012

- **Planning for Succession**
  - Single PIs, not in larger groups
  - Part-time faculty=other teaching responsibilities, no hard money
  - Faculty without tenure
- **Implementing User Fees**
  - Concern that raising fees could price users out of the marketplace
  - Small scale makes it hard to recoup costs for smaller repositories
  - Repository managers do not think they can become self-sustaining
- **Defining Collection Ownership**
  - No established practices for defining ownership or using MTAs resulting in legal questions
- **Transporting Stocks Internationally**
  - Living Stock Centers are subject to import/export restrictions
  - Shipping overseas is difficult (especially at small scale)

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## Opportunities in Sustaining Collections

From the Ecological Society of America, Living Stocks Collection Workshop 2012



- **Investing in Shared Collection Resources**
  - Tools for communication, public relations and advocacy
  - Scaling services could result in sustainability
- **Capturing Impacts**
  - Data and anecdotes on demonstrated impacts
- **Connecting as a Community**
  - e.g. US Culture Collection Network, PlantEngine, InfraCoMP
  - Sharing best practices


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## Addgene Statistics

- >33,000 plasmids stored
- From >2,000 contributing labs, >480 institutions worldwide
- >350,000 plasmids shipped to 5,000 institutions in 78 countries
- >2,000 plasmids shipped each week
- 51% shipped to scientists outside the United States
- Samples shipped within 2 business days of MTA approval



## Sharing Plasmids with Addgene

It's free to deposit plasmids

- Addgene's PhD Scientists help store plasmid data and take care of the quality control sequencing
- We make it very easy to deposit
- Advantages outweigh effort


We work with the Tech Transfer Offices

- To establish MTAs for each plasmid
- Excellent record keeping, good for their stats

What plasmids to we solicit for deposit?

- Published Plasmids
- Soon to be published plasmids
  - Addgene holds back data until publication when we associate the Addgene number(s) with the appropriate PubMed ID and make them available online
- Full length genes, Reporters, Plasmid tools/collections that will be useful to the community

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## Addgene's Collection


- Plasmids and collections for experiments in many organisms: human, mouse, rat, bacteria, yeast, worms, flies, fish, plants, etc.
- Plasmids for a wide variety of applications: gene expression, gene knockdown, tagging, empty backbones, etc.
  - Genome Engineering (e.g. TALENs, CRISPRs)
  - Viral expression & packaging
  - Fluorescent tags and biosensors
  - Stem Cell Factors
  - Reporters




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## Why is this Working?

- Tenacious and talented founders
- First adopters were respected scientists, prestigious institutions, leading TTOs
- Plasmids were getting less “valuable” in potential licensing terms
- Everybody was getting fed up with how long it takes to get an MTA in place
- Addgene created a “Win-Win-Win” service



addgene



## Creating a Win-Win-Win Situation

### Depositor Wins

- Save time by not having to answer requests for published reagents
- Gain exposure with searchable database
- Increase citations of depositor publications
- Protection against usual lab turnover, archiving of key reagents
- Never have to figure out how to ship to Qatar



### Requestor Wins

- Gain access to many laboratories' plasmids through one order
- Find things you didn't know you needed in the database
- Actually receive the plasmids requested, usually within days, and no reminder emails need to be sent to a busy lab tech
- International access
- Rigorous QC and curation


### Technology Transfer Office Wins

- Scientists actually use MTAs to exchange plasmids
- "Credit" for clearing MTAs rapidly
- Get a list of who has plasmids any time (for grants or legal record keeping)

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## Addgene's Electronic MTA System



- Addgene pioneered a novel, electronic MTA system to enable the easy transfer of biomaterials between research institutions
  - The eMTA system allows recipient organizations to complete MTAs electronically or to submit paper signatures
- Each plasmid exchanged has a signed MTA
  - Addgene has facilitated >180,000 MTAs since 2004
- UBMTA with a modified implementing letter used as base for all transfers
  - Ancillary Agreements used for special cases
  - No red lining, Addgene MTA used as is
- eMTA: 2012 finalist for the MassTLC Leadership Awards in the Best Use of Technology category

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- Addgene is a broker—all of our materials are completely owned by the depositor
- PIs get regular, automated email updates with information on who has requested their plasmids
- Or they can access this information via their account page
  - TTOs can see distribution of all plasmids at their institution

[Home](#)
[Request Plasmids](#)
[Find Plasmids](#)
[How to Use](#)
[Plasmid References](#)
[About Addgene](#)

[Why Upload](#)
[Research Plasmids](#)
[Start Deposit](#)
[My Activity](#)
[My Plasmids](#)
[Tech Transfer](#)
[FAQ](#)

# Requests for Bob Weinberg Lab Plasmids

Page 1 of 223 [\[help\]](#)

Plasmid	Requesting PI	Requesting Organization	Date
UCAS3.3.traps		OIC Institute	May 21 2013
UBARE_auacjarg3.pancosm		University of Virginia	May 21 2013
UBARE_auacj		Ludwig Institute for Cancer Research, San Diego Branch	May 21 2013
UBARE_auacj3793.sirc		Paternite Institute for Cancer Research	May 21 2013
UBARE_auacj45.BMT		Oncology Hospital Research Institute	May 21 2013
ALV-Delta.CARDS.DNA.M650		Cincinnati Children's Hospital Medical Center	May 21 2013
UBARE_auacj4.mtsd		University of Maryland, Baltimore	May 20 2013
WISL_Blast.N.Ram.G2129.749C		University of California, Los Angeles (UCLA)	May 20 2013
WISL_Blast.N.Ram.G2129.621A		University of California, Los Angeles (UCLA)	May 20 2013
WISL_Blast.N.Ram.G2129.710A		University of California, Los Angeles (UCLA)	May 20 2013
UBARE_auacj	Rutgers University (UK)	May 20 2013	

## Search for Plasmids

Optimized for Plasmids, Genes, and PI pages.

weinberg  [\[Search\]](#) [\[Save Search\]](#) [\[help\]](#)

## Full Site Search

Searches all Addgene web content

weinberg  [\[Search\]](#)

## Plasmid Search Results

PI: **Bob Weinberg**

1-13 of 202 results

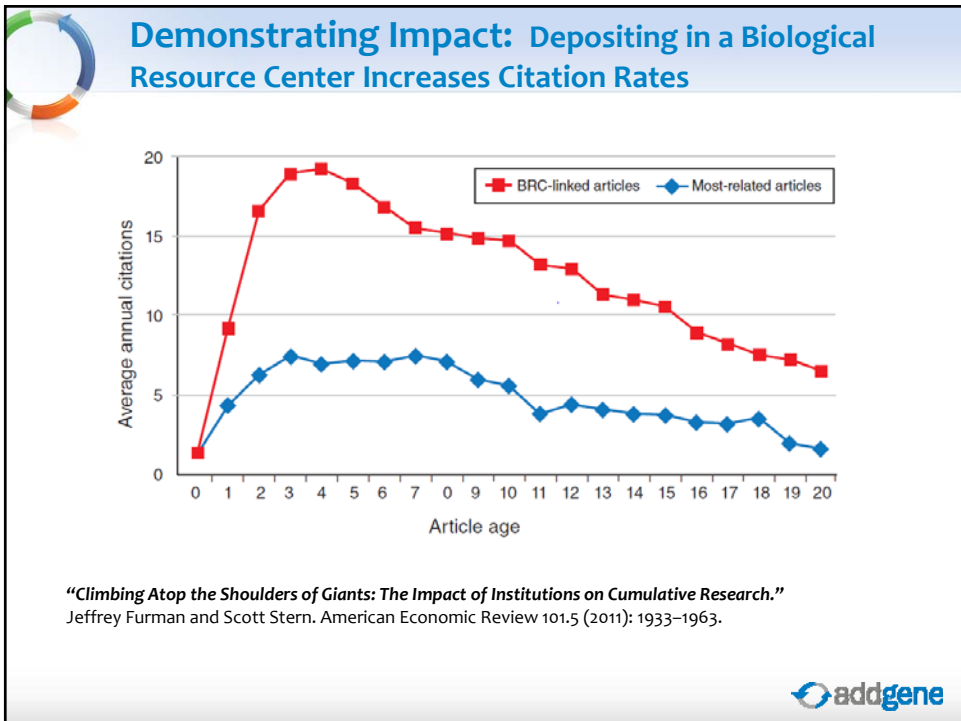
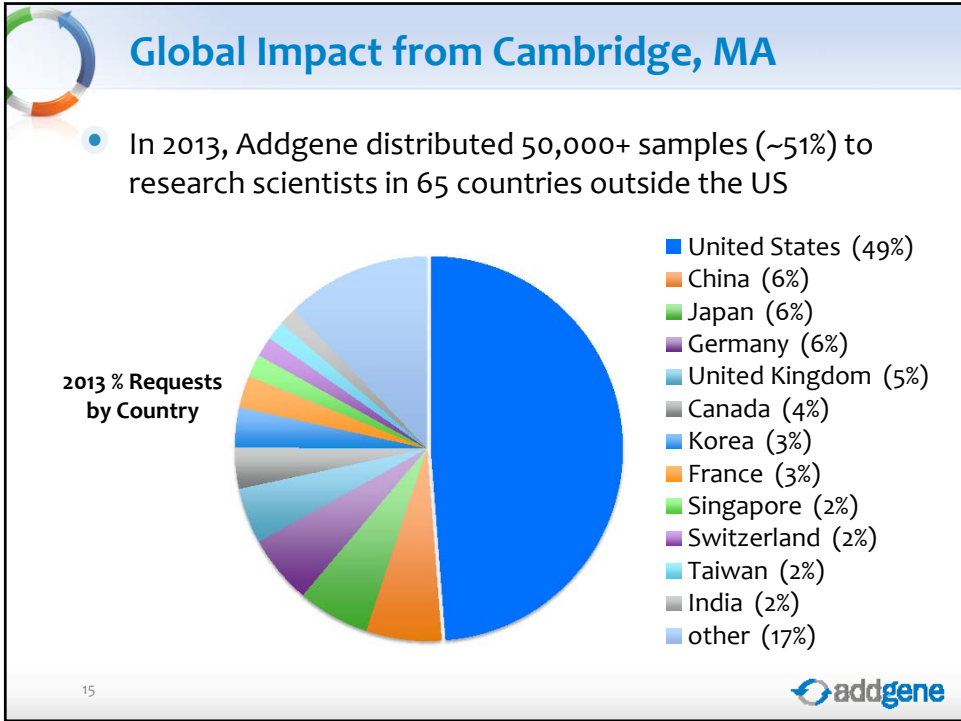
Plasmid Name	Tag Name	Expression	Mammalian	Deposited by	Mutation	None	Use:
pCMV-VSV-G (Plasmid #5454)	Empty Backbone						
pBABE puro (Plasmid #1764)	Empty Backbone						
pCMV-dlg.2.dscr (Plasmid #5405)	Tag None	Expression	Mammalian	Deposited by <a href="#">Bob Weinberg</a>	Mutation: None	Use: Retrieval	

**Sort:**

- By Relevance
- By Popularity

**Filter:**
[Clear All](#)

- ☒ Experimental use only
- ☐ Repurpose (115)
- ☐ Backbone (15)
- ☐ Vector (14)
- ☐ Screen (5)
- ☐ Read (7)
- ☐ Experimental Use only
- ☐ Read (14)
- ☐ Lentiviral (3)
- ☐ Repurpose (7)
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## Impact on the Community

*"I do science differently now that I can request plasmids from Addgene" –lab head at Yale*



The screenshot shows a Twitter thread titled "Mentions (Addgene)". The first tweet is from **jwoodgett** (@jwoodgett) dated Feb 21, 4:13pm via Tweetbot for Mac. The text says: "@David\_S\_Bristol Agreed (relentlessly brilliant). @Addgene has also probably saved just my lab 0.25 FTE." Below the tweet is a "Show Conversation" link. The second tweet is from **David\_S\_Bristol** (@David\_S\_Bristol) dated Feb 21, 4:07pm via HootSuite. The text says: "@jwoodgett They (@Addgene) are relentlessly brilliant with incoming to us so I expect that's true! I am confident that all will be sorted."

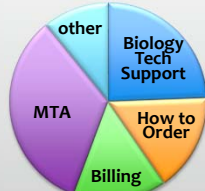
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## Customer Service Survey—January, 2013


- Sent to 15,000 scientists who had requested plasmids in 2012
- Results from 950 scientists who had used Addgene's customer service.
- Customer service inquiry:
  - 74% by email
  - 18% by telephone
  - 8% by web interface

**Type of Customer Service Inquiry**



Inquiry Type	Percentage
MTA	74%
Biology Tech Support	18%
How to Order	8%
Billing	0%
other	0%


**Please rate your experience with Addgene customer support**




Rating	Percentage
Excellent	98%
Good	2%
Fair	0%
Poor	0%

→ 98% of respondents indicated that they had an Excellent or Good experience with Addgene customer support

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## Addgene Molecular Biology Resources



**CRISPR/Cas Plasmids and Protocols**

Addgene is working with the leading scientists in the field to assemble the reagents and information you need to use the CRISPR/Cas9 technology in your own lab.

**Browse CRISPR Plasmids by Function**

- Cut**: Wild type Cas9 efficiently generates double strand breaks (DSBs) at sequences homologous to co-expressed gRNA.
- Nick**: A mutated "nickase" version of the Cas9 enzyme generates a single-strand DNA break (nick), instead of a double-strand DNA break (cut).
- Interfere**: A catalytically inactive Cas9 (dCas9) can knockdown gene expression by interfering with transcription. The dCas9 can sometimes be fused to an additional repressor peptide.
- Activate**: A catalytically inactive Cas9 (dCas9) fused to an activator peptide can activate or increase gene expression.
- Purify**: Isolate specific genomic regions of interest using a catalytically inactive Cas9 (dCas9) fused with an epitope tag(s).
- Visualize**: Visualize specific genomic regions of interest using a catalytically inactive Cas9 (dCas9) fused to a fluorescent protein.
- Screen**: Use pooled CRISPR libraries to screen for genes involved in specific biological processes.
- Empty**: Select a gRNA plasmid based on a variety of factors, such as selectable marker or Extracellular milieu.

**Additional Resources**

- CRISPR Guide
- CRISPR Protocols
- gRNA Design Tools
- CRISPR Blog Posts

**CRISPR Depositing Labs**

- Mike Boxem
- Simon Bullock
- John Calarco
- Wenbiao Chen
- Yonglong Chen
- George Church
- Jennifer Doudna
- Hodaka Fuji
- Wataru Fuji
- Charles Gersbach
- Bob Goldstein
- Meissa Harrison
- Izhuo Hatada
- Bo Huang
- Xingyu Huang
- Rudolf Jaenisch
- Keith Joung

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## A Better Way to Share—Plasmids and Science



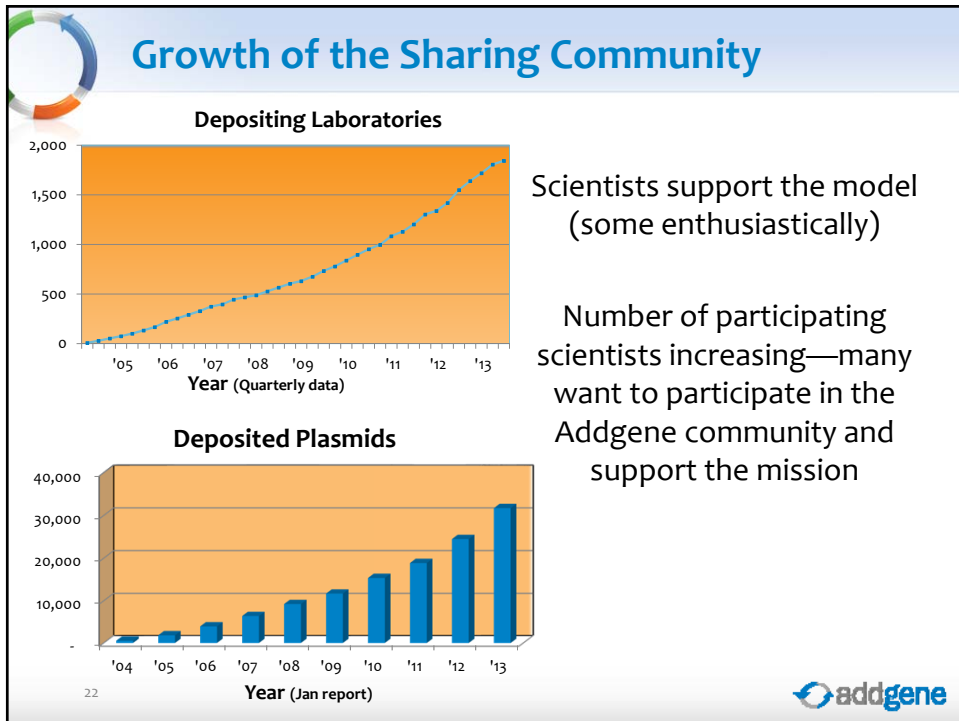
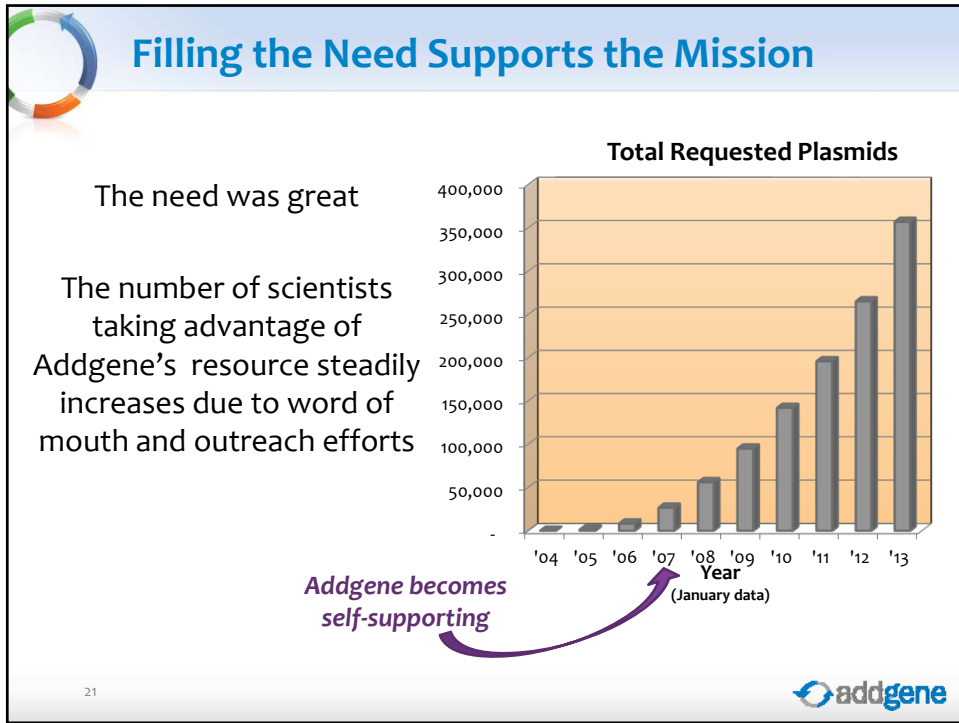
# Addgene Blog

## A Better Way to Share Science

**blog.addgene.org**

- Plasmids 101: What is a plasmid?
- The 10 Most Distributed Plasmid Technologies in Addgene's First 10 Years
- Using CRISPR/Cas9 to Edit Disease Out of the Genome
- Three Tips to Organize Your Lab Notebooks in the New Year
- Top 10 Open Science Developments of 2013
- "What Makes a Good Mentor?" and 6 More FAQs About Science Mentoring
- Drew Endy Introduces the Biobrick Public Agreement Plasmid Collection
- Overwhelmed? Take a Break with our 5 Favorite Science Comics
- Kiran Musunuru on the Newest TALEN Genome-Editing System
- From our Table to Yours: An Inside Look at Lunch at Addgene
- Let There Be LITE Plasmids
- Tag Your Favorite Yeast Genes with Ease

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## The Addgene Team

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