

Addgene –

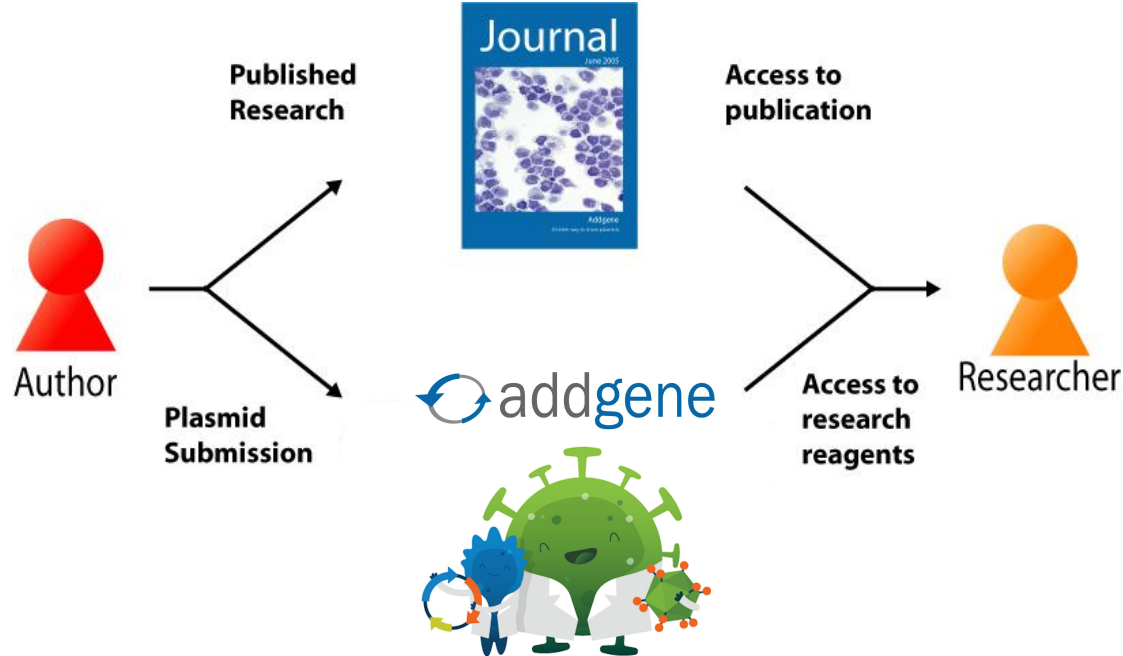
A Unique Nonprofit Accelerating Science

Joanne Kamens, PhD
Executive Director, Addgene



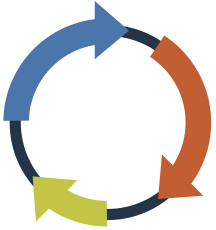
Addgene's Nonprofit Mission

*Accelerate research and discovery
by improving access to useful research materials and information*



The Addgene Open BioMaterials Collections

2004



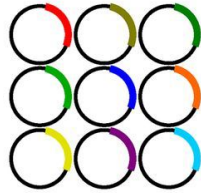
>80,000
Plasmids

2005



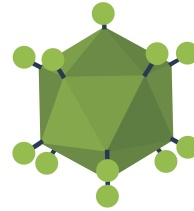
>100
Plasmid Kits

2007



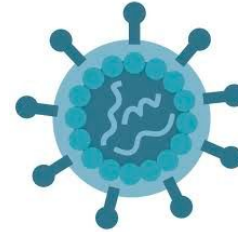
>150
Pooled Libraries

2016



>438
AAV Viral Vectors

2016



>15
Lentiviral Vectors

2017



7 Pooled Viral
Vector Libraries
(MORE COMING!)

addgene  beta

2020



>200
Cloning Grade DNA

2021



Centralized Materials and Reproducible Science



Wide access to large collection of open materials



Rapid distribution of materials worldwide



Data, specification and protocol sharing

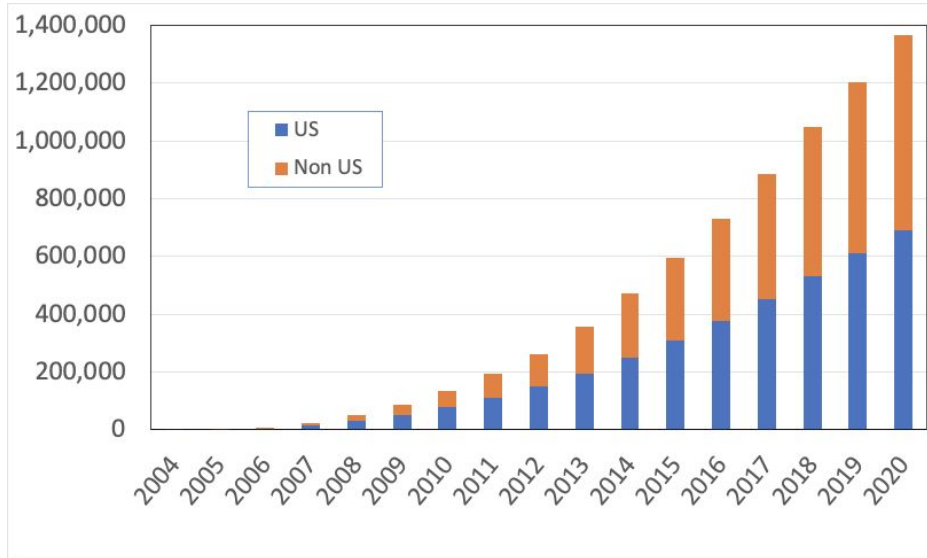


Guaranteed quality control of materials

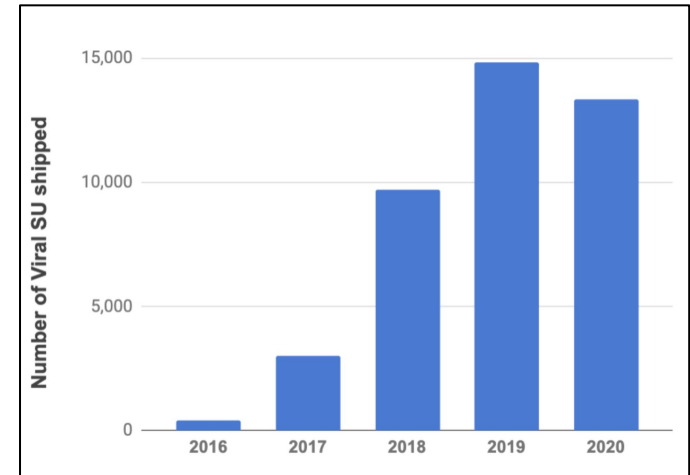
Enabling Scientists for Experimental Success

“Scaling” of a centralized resource enables better service and much more support
>95,000 Materials stored >850 items distributed each day to >7,300 institutions

Plasmids Distributed by Addgene

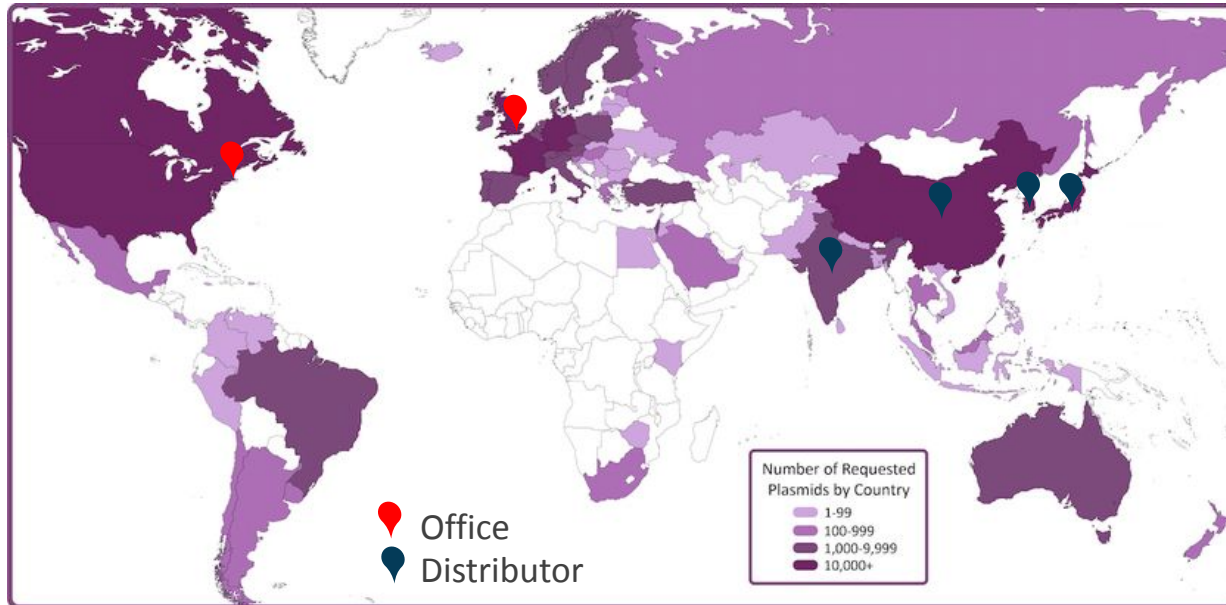


Viral Vectors Distributed by Addgene



Sharing Around the World

*Addgenies solve tricky import/export situations for scientists around the globe.
We make it possible to easily get materials from Anchorage to Australia.*



Joining the Sharing Community

Depositing is Easy

Addgene PhDs help during the entire process

Start by depositing most requested plasmids

Addgene takes care of entire tech transfer process

Deposit before publication - when the paper comes out, plasmid numbers are in materials and methods

Depositor Benefits

Plasmids get used again, not lost in freezer ice

Save time fulfilling requests

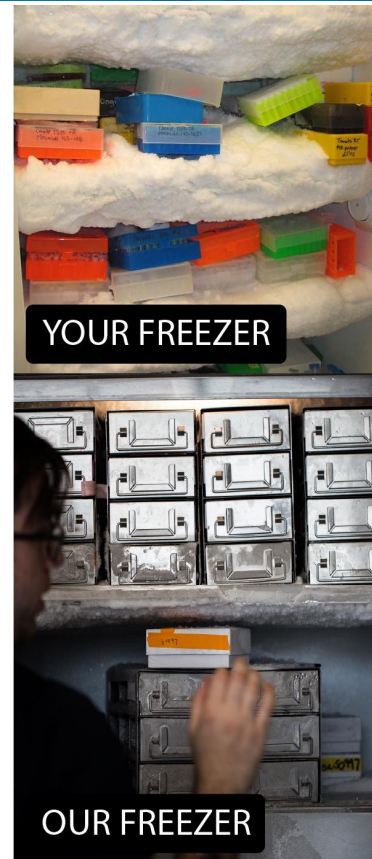
International sharing is easy

Archiving of key reagents

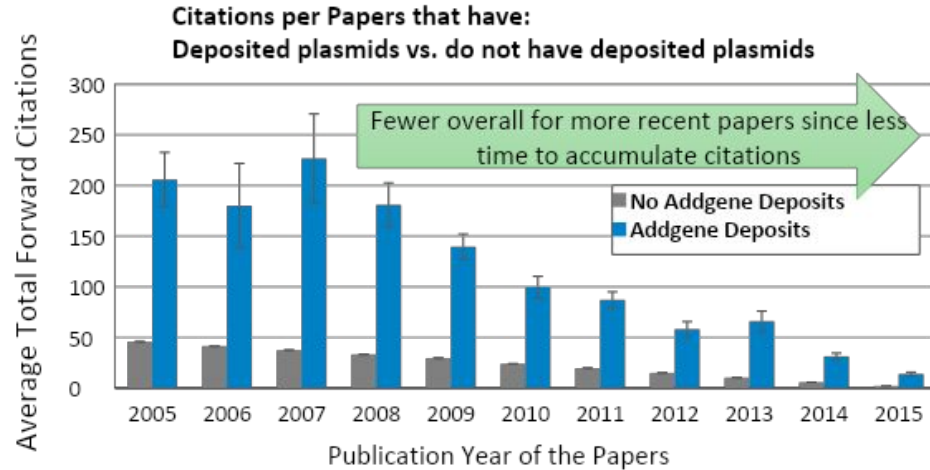
Protection against losses due to lab turnover

Records of all requests

Increased exposure for your science

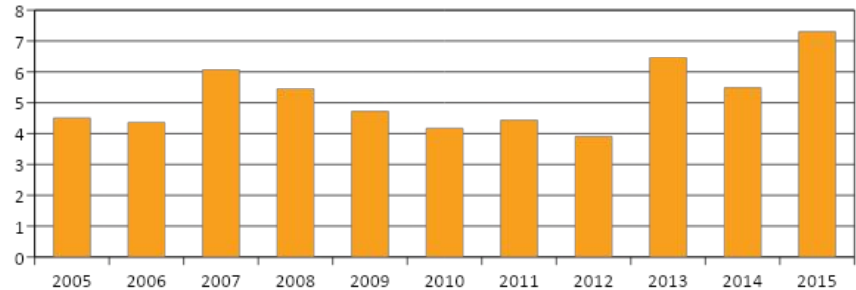


Impact Data—Depositing Increases Citations



- Samantha Zyontz and Neil Thompson
- MIT Sloan School of Management
 - Citations through June 2016
 - n = 1,315,420 papers with no deposits, 2,596 papers with deposits
- Read more about this study blog.addgene.org

Fold Increase in Citations
Addgene plasmids/no Addgene plasmids



Sharing to Optimize Research Dollars

- Why make the same plasmid again?
- Large batches of quality controlled common reagents—valuable. Labs don't have to buy a whole batch themselves—priceless!
- Pooled libraries available, ready for screening—saves time and money
- Kits and samples:
 - Example: AAV Serotype Testing Kits - AAV encoding fluorescent reporters to compare the tropism of different serotypes. 20 μ L option as an economical choice that can be used to validate the performance of various serotypes before conducting large scale experiments.

Bad Reagents, Poor Outcomes

Correct DNA Sequence



Materials that have passed quality control at Addgene save scientists time and money, accelerating research and discovery

Incorrect DNA Sequence



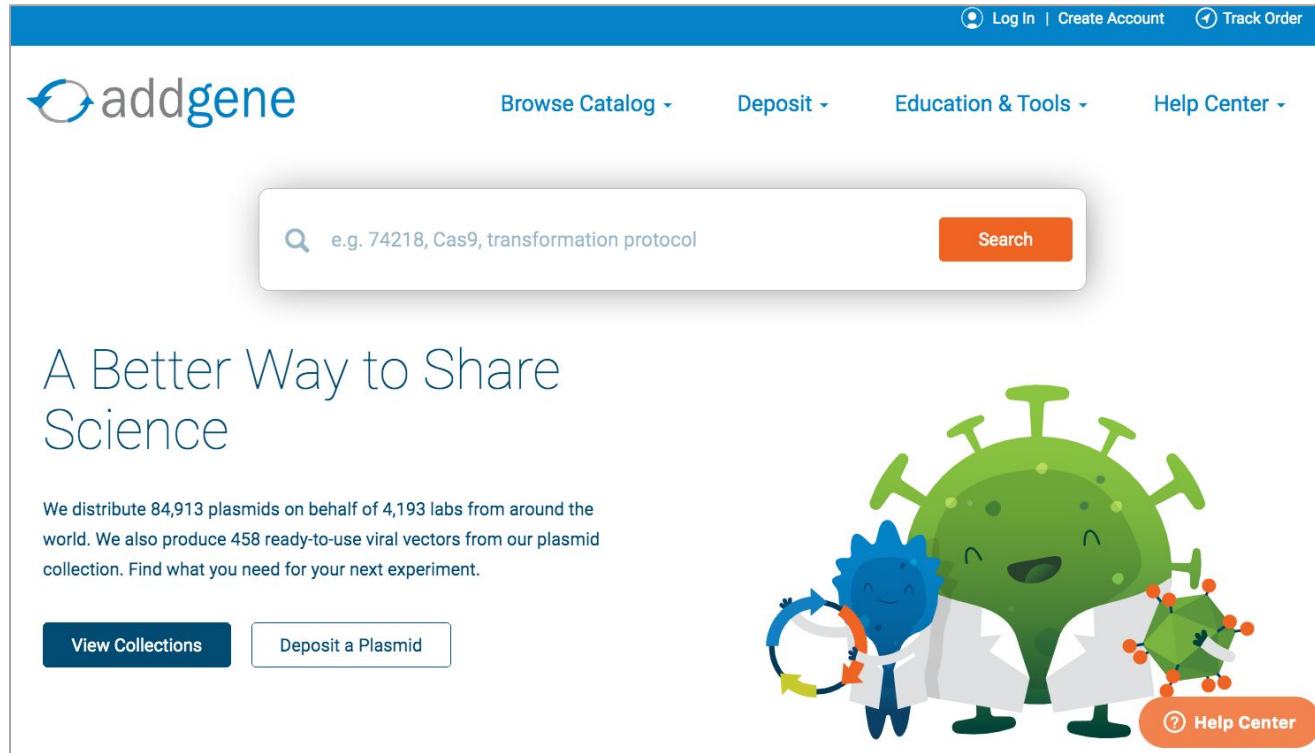
An incorrect sample sets a scientist back weeks or months.

Adds an incredible amount of frustration as to why experiments are not working.

Leads to incorrect results and interpretations

www.addgene.org

An Information and Education Portal



The screenshot shows the homepage of the addgene.org website. At the top, there is a blue navigation bar with links for "Log In", "Create Account", and "Track Order". Below this is the addgene logo and a navigation menu with "Browse Catalog", "Deposit", "Education & Tools", and "Help Center". A search bar is prominently displayed with the placeholder text "e.g. 74218, Cas9, transformation protocol" and a "Search" button. The main content area features the heading "A Better Way to Share Science" and a paragraph stating: "We distribute 84,913 plasmids on behalf of 4,193 labs from around the world. We also produce 458 ready-to-use viral vectors from our plasmid collection. Find what you need for your next experiment." Below this text are two buttons: "View Collections" and "Deposit a Plasmid". On the right side of the main content area is a large, colorful illustration of three cartoon characters: a blue one with a circular arrow around its head, a green one with a large green virus-like head, and a smaller green one with a molecular structure head. A "Help Center" button is located at the bottom right of the illustration.

*>2.5 million
pageviews per
month*

*> 200,000 unique
users per month*

Resource and Information Portal

The resource and information nexus centered on a plasmid page

Additional plasmids from the same lab

Annotated plasmid map and sequence files

Plasmid backbone information

Additional plasmids from the same publication

lentiCRISPR v2
(Plasmid #52961)

PURPOSE
Replaces original lentiCRISPRv1 (Addgene Plasmid #49335) and produces ~10-fold higher titer virus. 3rd generation lentiviral backbone.

DEPOSITING LAB
Feng Zhang

PUBLICATION
Sanjana et al Nat Methods. 2014 Aug;11(8):783-4. doi: 10.1038/nmeth.3047. (How to cite \$)

SEQUENCE INFORMATION
Depositor Sequences: None.
Addgene Sequences: Full (1) Partial (9)

Item	Catalog #	Description	Quantity	Price (USD)
Plasmid	52961	Plasmid sent as bacteria in agar stab	1	\$65

BACKBONE
Vector backbone: Custom (Search Vector Database)
Backbone size w/o insert (bp): 10000
Total vector size (bp): 14873
Vector type: Mammalian Expression, Lentiviral, CRISPR
Selectable markers: Puromycin

GENE/INSERT 1
Gene/insert name: Cas9
Alt name: S. pyogenes CRISPR-Cas9
Species: Synthetic
Insert size (bp): 4200
Promoter: EFS-NS
Tag / Fusion Protein:
• FLAG (C terminal on insert)

Not shown: growth instructions, cloning information, additional instructions for citation

Protocols

Other papers using this plasmid

Notes from the depositor

Instructions on how to cite the plasmid

RESOURCE INFORMATION

Supplemental Documents:

- GenBank file
- lentiCRISPRv2 and lentiGuide oligo cloning protocol

Addgene Notes:

- Addgene Diagnostic Digest
- Addgene Diagnostic Digest

Terms and Licenses:

- UBMTA
- Institut Pasteur Label License for cPPT

Articles Citing this Plasmid:

- 261 References

DEPOSITOR COMMENTS

This plasmid is an updated version of the original lentiCRISPR (Addgene plasmid #49335)

IMPORTANT: The primers suggestions listed above are for gene inserts that exist in the untouched vector. After you have inserted your gRNA, you should use hU6-F (5'-GAGGGCGTATTCCGATGAT-3') or LKO.1 5' (5'-GACATCATGCTACCT-3') to sequence that region.

Special note from the Zhang lab: We are constantly improving our CRISPR reagents. Please check www.genome-engineering.org for the most up-to-date information.

How to cite this plasmid (Back to top \$)

These plasmids were created by your colleagues. Please acknowledge the Principal Investigator, cite the article in which the plasmids were described, and include Addgene in the Materials and Methods of your future publications.

For your **Materials & Methods** section:

lentiCRISPR v2 was a gift from Feng Zhang (Addgene plasmid # 52961)

Free Educational Resources

- **Blog:** >120,000 views per month
- **Scientific protocols:** ~100,000 views/month
- **eBooks:** >26,000 downloads 2019
 - Plasmids 101, CRISPR 101, Fluorescent Proteins 101, Viral Vectors 101 & a Science Career Guide
- **Videos:** >28,000 views/month on our Youtube channel of >100 videos
- **Technical Service:** >10,000 inquiries/year

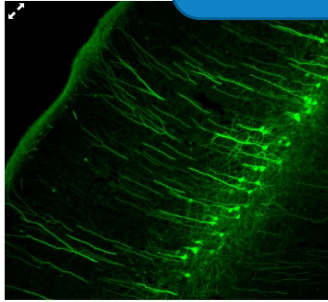
addgene.org/educational-resources



Platform for Sharing AAV Data

pAAV-CAG-GFP

Addgene #37825



Caption: This is an image taken at 10X on a Zeiss Axiomager microscope. The tissue is paraformaldehyde-fixed, frozen-sectioned, then mounted onto a gelatin-coated slide and coverslipped with DPX mountant. This is direct EGFP fluorescence in pyramidal cells of layers V and VI of auditory cortex in a guinea pig. The fluorescence is the result of an injection of rgAAV-CAG-EGFP into the ipsilateral inferior colliculus of this animal.

Image attribution: Taken by Brett Schofield.

Promoter? Serotype?
How much virus should I inject?
How long should I wait?

Virus & Injection

Primary Virus pAAV-CAG-GFP (AAV Retrograde)
Promoter CAG
Injected Titer 5.00E+12 GC/ml
Injected Volume two 0.05 µl injections (0.1 µl total)
Injection Rate 0.05 µl over about 2.5 min
Injection Site Brain parenchyma
Brain Region Midbrain: Tectum

Injection Site Comments The injection was made into the inferior colliculus in an attempt to label neurons in other brain regions (e.g. contralateral inferior colliculus, lower brainstem auditory nuclei, auditory cortex) that make projections to the inferior colliculus.

Data Submitted By

Nichole Beebe and Brett Schofield

Vectors Used

pAAV-CAG-GFP #37825-AAVrg deposited by Edward Boyden

addgene AAV Data Hub Beta Return to Addgene.org



AAV Data Hub

An open collection of user data intended to help scientists design AAV experiments.
These data have been generously provided by researchers around the world.

[Contribute Data](#)

Search

123 Experiments

Image	Injection Site	Expression Site	Species / Subject	Serotype	Promoter	Tool Type	Addgene Catalog Item
 View Details	Brain parenchyma	Dorsal anterior cingulate cortex/medial secondary motor cortex of mouse. Neuronal cell class	Mouse	AAV1	Syn	Recombinase	pENN-AAV.hSyn.Cre.WPRE.hGH (#105553-AAV1)
	Brain parenchyma	Expression was local to the barrel cortex. Assumed parvalbumin cells, but	Mouse	AAV9	CaMKIIa	Biosensor	AAV.CamKII.GCaMP6s.WPRE.SV40 (#107790-AAV9)

- Addgene collects data from requesting scientists
- Data add value to the materials because of Addgene curation and centralization!

Neuroscience Resources at addgene.org

- Addgene's blog - <https://blog.addgene.org/topic/neuroscience>
- AAV Data Hub - <https://datahub.addgene.org/aav/>
- Neurodegeneration Research Collection - <http://www.addgene.org/collections/neurodegeneration/>
- Guide example Optogenetics Guide - <http://www.addgene.org/guides/optogenetics/>
- Collection page example The Brain Initiative - <http://www.addgene.org/collections/brain-initiative/>

How Can We Help?

