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MIP-Luc-VU - Mouse Strain RES237**Mouse Information**

Common Name:	MIP-Luc-VU
MGI Official Name:	FVB/NJ-Tg(MIP-Luc-VU)3Pwrs/J
Description:	We generated a transgenic mouse expressing the luciferase optical reporter under control of the mouse insulin I promoter (MIP-Luc-VU) and characterized this model in mice with increased or decreased beta-cell mass and after islet transplantation. MIP-Luc-VU mice emitted strong and consistent bioluminescence emanating exclusively from beta-cells of the pancreatic islet. MIP-Luc-VU islets had normal islet architecture and secreted insulin normally in vivo and in vitro. By tracking changes in β cell mass using bioluminescence imaging (BLI) and post-mortem metrics, streptozotocin-induced, diabetic MIP-Luc-VU mice had a progressive decline in bioluminescence that correlated with a decrease in pancreatic insulin content and beta-cell mass. MIP-Luc-VU animals fed a high fat diet displayed a progressive increase in bioluminescence that reflected an immunohistochemically verified increase in beta-cell mass. MIP-Luc-VU islets transplanted beneath the renal capsule or into the liver emitted bioluminescence proportional to the number of islets transplanted and graft insulin content and could be imaged for more than a year. Since bioluminescence in the MIP-Luc-VU mouse model is proportional to beta-cell mass in the setting of increased and decreased beta-cell mass and after transplantation, this approach should be useful for non-invasively assessing beta-cell mass in pre-clinical mouse models of glucose homeostasis, beta-cell growth and regeneration, and diabetes.
Categories:	None specified.


Genetic Alterations

1) BAC or Transgene Insertion					
Type of Vector	Plasmid				
Promoter	Mouse insulin (MIP - MGI:16333)				
Expressed Gene	Luciferase (Luc)				
Description of Transgene	A vector with the 9.2 kb mouse insulin I promoter (MIP) was used (MIP promoter from Mark Magnuson - see Am J Physiol Endocrinol Metab 284: E177-183, 2003). The luciferase cDNA was released from the blue script vector (Stratagene, La Jolla, CA) by digestion with Kpm I and Not I, purified by agarose gel electrophoresis, and subcloned into a vector containing the MIP fragment and beta globin fragment.				
Vector Genbank File	<i>Not provided</i>				
Citations	<table border="1"> <thead> <tr> <th>PubMedID</th> <th>Citation</th> </tr> </thead> <tbody> <tr> <td>19548035</td> <td>Bioluminescence imaging in mouse models quantifies beta cell mass in the pancreas and after islet transplantation. () <i>Mol Imaging Biol</i> 12: 42-53 (Added 2009-12-27 06:16:33.037619)</td> </tr> </tbody> </table>	PubMedID	Citation	19548035	Bioluminescence imaging in mouse models quantifies beta cell mass in the pancreas and after islet transplantation. () <i>Mol Imaging Biol</i> 12: 42-53 (Added 2009-12-27 06:16:33.037619)
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19548035	Bioluminescence imaging in mouse models quantifies beta cell mass in the pancreas and after islet transplantation. () <i>Mol Imaging Biol</i> 12: 42-53 (Added 2009-12-27 06:16:33.037619)				


Strain Information

Strain Type:	Inbred Strain
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Access Status

 This resource is publicly viewable.


Request this Resource


 Request from a repository

Primary contributor: [Powers Lab](#)

Resource Tags

Luc, MIP, MIP-Luc-VU, mouse, mouse strain

 Login to edit tags

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Resource History & Actions

Approved on May 16, 2008
Last modified on Feb 25, 2010

 Login to edit or request an edit

Related resources**BCBC**

No matching resources

Other Consortia

No matching resources

Data courtesy of [dkCOIN](#). Only public resources are displayed.

Chimera/Founder Genetic Background:	FVB/NJ
Current Genetic Background:	FVB/NJ (date recorded: 04/23/2015)
Strain Description:	The purified DNA was injected by the Vanderbilt University Transgenic / ES core into Friend leukemia Virus B strain (FVB/NJ, Jackson Labs, Bar Harbor, ME) mouse embryos.

Associated Images

No associated images have been supplied

Repositories

The Jackson Laboratory

No URL supplied for repository **Stock #:** JR#7800 FVB/N-Tg(Ins1-luc)VUPwrs/J
Availability Notes: Not provided

Contact Information

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Associated Publications

No publications associated

Comments

There are no comments for this entry.

