



LOVD3 Course

Create gene variant database (LSDB)

Build 3.0-14

Daan Asscheman
Ivo F.A.C. Fokkema
Leiden University Medical Center

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1. Introduction

We provide two articles as example:

1. “Mutations in ABHD12 cause the neurodegenerative disease PHARC: an inborn error of endocannabinoid metabolism” (Fieskerstrand et al., 2010 PubMed: PMC2933347)
2. “Mutations in IMPG2, encoding interphotoreceptor matrix proteoglycan 2, cause autosomal-recessive Retinitis pigmentosa” (Bandah-Rozenfeld et al., 2010 PubMed:PMC2917719)

Choose an article to use as a template for making your new gene variant database. But you may use whatever you like (other articles, personal data, own database, OMIM etc.). In the examples provided in this course manual we will use the first article.

Before you create a gene variant database, you should decide which functional fields (columns) you would want in the database, e.g. look at the mutation tables in the articles.

- Decide which reference sequence to use.
- In case you select the NG, always check that the transcript you want to use is contained in the reference sequence file.
- Look if the disorder has an OMIM entry.
- Go to <http://courses.lovd.nl/LOVD3/> and select the directory corresponding to the number assigned to you.

2. Creating a gene variant database (LSDB)

The objective of this chapter is:

1. Add a new gene to the database.

To start this chapter:

- Log in as Manager (with for every one the same username: manager, password: manager1).

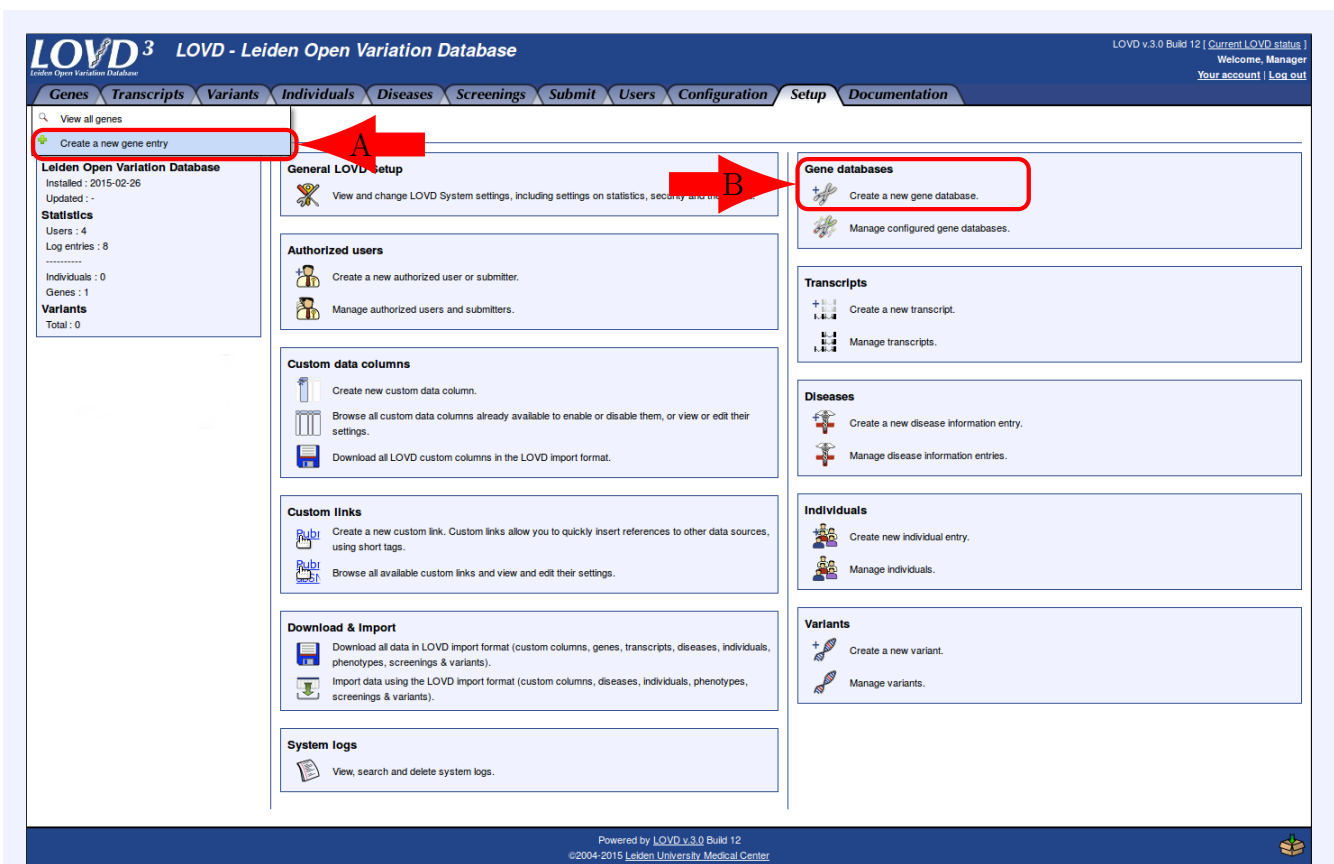


Figure 2.1: Create a new gene. You can do that via the “Create a new gene entry” link from the Genes menu tab drop down menu (A). You can also do that from the Setup area and click the “Create a new gene database” link listed under “Gene databases” (B).

2. Creating a gene variant database (LSDB)

LOVD³ LOVD - Leiden Open Variation Database
tetra tricopeptide repeat domain 8 (TTC8)
Curators: LOVD3 Admin and Curator

Genes Transcripts Variants Individuals Diseases Screenings Submit Users Configuration Setup Documentation

Create a new gene information entry

Please fill in the HGNC ID or Gene Symbol for the gene database you wish to create.

HGNC ID or Gene Symbol

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Figure 2.2: Insert the HGNC gene symbol.

You can find the symbol at the HGNC (<http://www.genenames.org/>) or at the NCBI entrez gene. In our example we will use the gene symbol ABHD12. Hereafter, press “Continue”.

LOVD³ LOVD - Leiden Open Variation Database
tetra tricopeptide repeat domain 8 (TTC8)
Curators: LOVD3 Admin and Curator

Genes Transcripts Variants Individuals Diseases Screenings Submit Users Configuration Setup Documentation

Create a new gene information entry

To create a new gene database, please complete the form below and press “Create” at the bottom of the form.

General Information

Full gene name abhydrolase domain containing 12
Official gene symbol ABHD12
Chromosome 20
Chromosomal band p11.21
Imprinting Unknown
Date of creation (optional)

Relation to diseases (optional)

This gene has been linked to these diseases

- BBS (BARDET-BIEDL SYNDROME)
- RP51 (RETINITIS PIGMENTOSA 51)

Diseases not in this list are not yet configured in this LOVD.
Do you want to [configure more diseases](#)?

Reference sequences (mandatory)

Collecting variants requires a proper reference sequence. Without a genomic and a transcript reference sequence the variants in this LOVD database cannot be interpreted properly or mapped to the genome.

Genomic reference sequence NC_000020.10

Transcript reference sequence(s)

- transcript variant 1 (NM_001042472.2)
- transcript variant 2 (NM_015600.4)
- transcript variant X1 (XM_005260698.1)
- transcript variant X2 (XM_005260699.2)
- transcript variant X3 (XM_005260700.1)

Figure 2.3: You can link a Disease to this gene (A). But the genes listed here are from previous exercises and are not linked to our current gene. We could create diseases from here, see figure 2.3 in course manual “Curate gene variant database” how. For now, do not select any disease, we will create a new disease later.

For “Genomic reference sequence”, select “NC_000020.10” (B) and for “Transcript reference sequences”, select “NM_001042472.2” (C).

2. Creating a gene variant database (LSDB)

Links to information sources (optional)	
Here you can add links that will be displayed on the gene's LOVD gene homepage.	
Homepage URL	<input type="text"/>
If you have a separate homepage about this gene, you can specify the URL here. Format: complete URL, including "http://".	
External links	<input type="text"/>
Here you can provide links to other resources on the internet that you would like to link to. One link per line, format: complete URLs or "Description <URL>".	
HGNC ID	15868
Entrez Gene (Locuslink) ID	26090
OMIM Gene ID	613599
Provide link to HGMD	<input type="checkbox"/>
Provide link to GeneCards	<input type="checkbox"/>
Provide link to GeneTests	<input type="checkbox"/>
This gene has a human-readable reference sequence	<input type="text" value="No"/>
Although GenBank files are the official reference sequence, they are not very readable for humans. If you have a human-readable format of your reference sequence online, please select the type here.	
Human-readable reference sequence location	<input type="text"/>
If you are going to use our Reference Sequence Parser to create a human-readable reference sequence, the result will be located at "https://localhost/svn/LOVD3_training_01/trunk/src/refseq/ABHD12_codingDNA.html".	

Figure 2.4: You can provide links to other resources on the internet that you would like to link to.

Customizations (optional)	
You can use the following fields to customize the gene's LOVD gene homepage.	
Citation reference(s)	<input type="text"/>
(Active custom link : Pubmed)	
Include disclaimer	<input type="text" value="Use standard LOVD disclaimer"/>
If you want a disclaimer added to the gene's LOVD gene homepage, select your preferred option here.	
Text for own disclaimer (HTML enabled)	<input type="text"/>
Only applicable if you choose to use your own disclaimer (see option above).	
Page header (HTML enabled)	<input type="text"/>
Text entered here will appear above all public gene-specific pages.	
Header aligned to	<input type="text" value="Left"/>
Page footer (HTML enabled)	<input type="text"/>
Text entered here will appear below all public gene-specific pages.	
Footer aligned to	<input type="text" value="Left"/>
Notes for the LOVD gene homepage (HTML enabled)	<input type="text"/>
Text entered here will appear in the General Information box on the gene's LOVD gene homepage.	
Notes for the variant listings (HTML enabled)	<input type="text"/>
Text entered here will appear below the gene's variant listings.	
Security settings	
Using the following settings you can control some security settings of LOVD.	
Allow public to download variant entries	<input type="checkbox"/>
Allow my public variant and individual data to be indexed by WikiProfessional	<input type="checkbox"/>
<input type="button" value="Create gene information entry"/>	

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Figure 2.5: You can add a disclaimer, page header or page footer to the gene's LOVD gene homepage. Click "Create gene information entry" when you are ready. Hereafter you are redirected to "Authorize curators for the gene". We will come back later on this subject in chapter "Creating and managing users". For now, click "Cancel".

3. Creating a disease

The objective of this chapter is:

1. Create a new disease and link this disease to our gene.

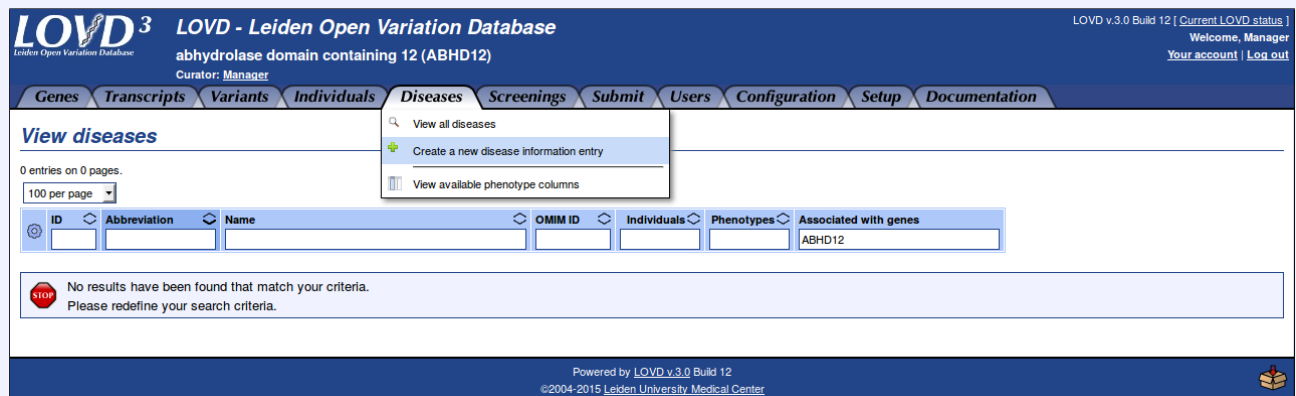


Figure 3.1: To create a new disease, click “Create a new disease information entry” from the Disease menu tab.

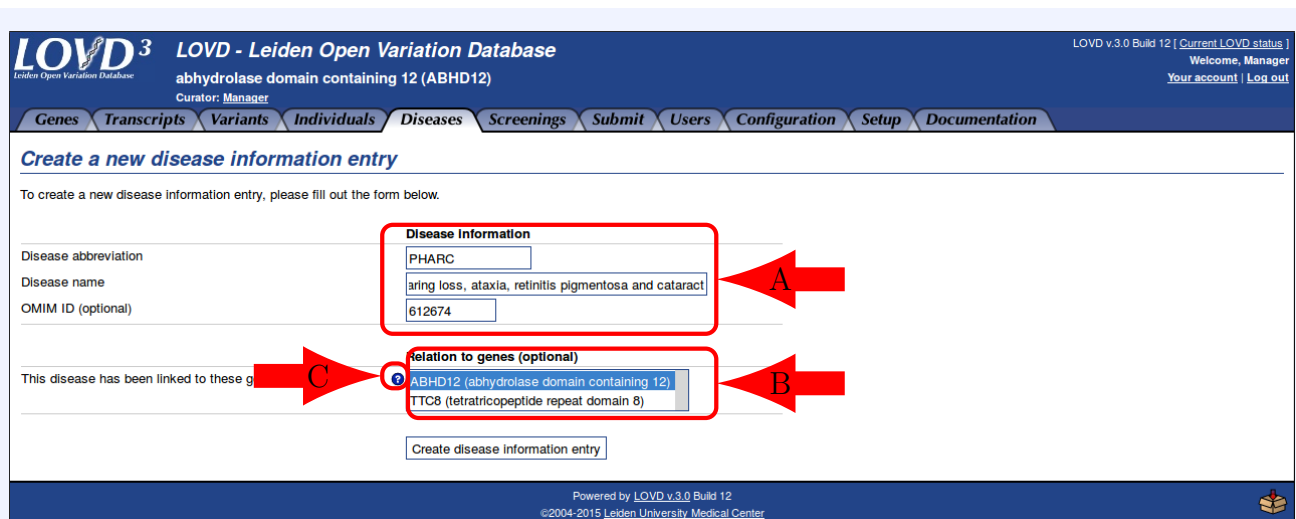


Figure 3.2: Give disease abbreviation, name and OMIM ID (A).

You can make a relation with a gene by selecting one or more genes (B). See help text for how to select multiple genes (C). In our example, we select ABHD12 and click “Create disease information entry”.

4. Creating and managing columns

The objective of this chapter is:

1. Create a new custom column.
2. Manage the custom column.

To start this chapter:

- See chapter “[Editing columns and legends](#)” in course manual “Curate gene variant database” for some additional exercises on custom columns.

4.1 Create new custom columns

The screenshot shows the LOVD 3.0 Setup page. The top navigation bar includes tabs for Genes, Transcripts, Variants, Individuals, Diseases, Screenings, Submit, Users, Configuration, Setup, and Documentation. The Setup tab is active, and its dropdown menu is open, showing options like 'LOVD system settings', 'Create new custom data column' (highlighted with a red box and arrow A), 'Browse all custom data columns', 'Download all LOVD custom columns', 'Create a new custom link', 'Browse all available custom links', 'Download all data', 'Import data', and 'View system logs'. In the main Setup area, the 'Custom data columns' section is highlighted with a red box and arrow B, containing a 'Create new custom data column' link. The page also displays statistics for the Leiden Open Variation Database, including installed date, updated date, users, log entries, individuals, genes, variants, and public status. Other sections include General LOVD Setup, Authorized users, Custom links, Download & Import, and System logs.

Figure 4.1: You can create a new column via the “Create new custom data column” link from the Setup drop down menu tab (A), or you can click “Create new custom data column” from the Setup area (B).

LOVD³ LOVD - Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12)
 Curator: Manager

LOVD v.3.0 Build 12 [[Current LOVD status](#)]
 Welcome, Manager
[Your account](#) | [Log out](#)

[Genes](#) [Transcripts](#) [Variants](#) [Individuals](#) [Diseases](#) [Screenings](#) [Submit](#) [Users](#) [Configuration](#) [Setup](#) [Documentation](#)

Create new custom data column

You're about to create a new custom data column. This will allow you to define what kind of information you would like to store in the database. Please note that *defining* this type of information, does not automatically make LOVD store this information. You will need to *enable* it after defining it, so it actually gets added to the data entry form.

Firstly, please choose what kind of category the new type of data belongs to:

<input type="radio"/>	Information on the individual, not related to disease, not changing over time, such as date of birth
<input checked="" type="radio"/>	Information on the phenotype, related to disease, possibly changing over time, such as blood pressure
<input type="radio"/>	Information on the detection of new variants, such as detection technique or laboratory conditions
<input type="radio"/>	Information on the variant(s) found, in general or on the genomic level, such as restriction site change
<input type="radio"/>	Information on the variant(s) found, specific for the transcript level, such as predicted effect on protein level

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Figure 4.2: Select the category to which the new type of data belongs to. In our example we will add a new column “Neurography and EMG” (see table 1 in Fiskerstrand et al., 2010). This is a phenotype field related to disease, so select “Information on the phenotype, related to disease”.

LOVD³ - Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12)
 Curator: Manager

LOVD v.3.0 Build 12 | Current LOVD status | Welcome, Manager | Your account | Log out

Genes | Transcripts | Variants | Individuals | Diseases | Screenings | Submit | Users | Configuration | Setup | Documentation

Create new custom phenotype data column

Column name and descriptions
 Selected category: Phenotype
 Column ID:
This ID must be unique and may contain only letters, numbers and underscores. Subcategories must be divided by a slash (/), such as "Blood_pressure/Systolic".
 Description on short legend (HTML enabled):
 Description on full legend (HTML enabled):

Data and form settings (Use data type wizard to change values)
 Start data type wizard

MySQL data type:
 Form type:

Column settings
 Please note that fields marked with * are merely default values. For each configured disease, these values may be changed at any later time.
 Include this column for newly configured diseases: ☐
 Column display width in pixels *:
(This is 200 pixels)
 Mandatory field *: ☐
 Show contents to public *: ☒
 Show field on submission form *: ☒

Link settings
 Active custom links: ☒ DbSNP, ☐ GenBank, ☐ OMIM, ☐ PubMed [Select all](#)

Enter your password for authorization:

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Figure 4.3: Fill the fields under section “Column name and description”: Column ID, Column heading, Description on short legend and Description on full legend (A).

Then press “Start data type wizard” under section “Data and form settings” (B). This will open a pop-up screen where you can determine the data type for your new column. The results of the data type wizard are saved in the fields “MySQL data type” and “Form type” (C).

Only if you really know what you’re doing, you can edit “MySQL data type” and “Form type” directly (C).

Data type wizard

Basic form style

Select custom column's form style

Selection list (multiple options selected) A

This is the type of field your custom column will appear on the data entry (submission) forms.

Next »

Data type wizard

Column name on form: Neurography and EMG

Help text (optional):

Notes on form (optional) (HTML enabled):

Height on form (lines): 4

Provide "select all" link: ☐

List of possible options:

B

Demyelinating polyneuropathy

Demyelinating/axonal polyneuropathy

Axonal polyneuropathy

Severe demyelinating polyneuropathy

Severe demyelinating polyneuropathy on nerve biopsy

This is used to build the available options for the selection list.
One option per line.
If you want to use abbreviations, use: Abbreviation = Long name
Example: "DMD = Duchenne Muscular Dystrophy"

Finish

Figure 4.4: Here you may choose between the following type of input fields (A): Text/numeric, Integer, Decimal, Large multi-row textual, Drop down list (1 option selected), Selection list (multiple selection), date and On/Off checkbox. In our example we use “Selection list (multiple options selected)”. Press “Next” when you’re ready.

In the second data type wizard form you can list the options (B). Use the data from the “Neurography and EMG” (see table 1 in Fiskerstrand et al 2010) column. Put each option on a new line and press “Finish” when you are ready.

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 abhydrolase domain containing 12 (ABHD12)
 Curator: Manager

LOVD v.3.0 Build 12 | [Current LOVD status](#)
 Welcome, Manager
[Your account](#) | [Log out](#)

[Genes](#) [Transcripts](#) [Variants](#) [Individuals](#) [Diseases](#) [Screenings](#) [Submit](#) [Users](#) [Configuration](#) [Setup](#) [Documentation](#)

Create new custom phenotype data column

Column name and descriptions

Selected category: Phenotype

Column ID:
This ID must be unique and may contain only letters, numbers and underscores. Subcategories must be divided by a slash (/), such as 'Blood_pressure/Systolic'.

Column heading:

Description on short legend (HTML enabled):

Description on full legend (HTML enabled):

Data and form settings (Use data type wizard to change values)

[Start data type wizard](#)

MySQL data type: **A**

Form type:

Column settings

Please note that fields marked with * are merely default values. For each configured disease, these values may be changed at any later time.

Include this column for newly configured diseases: ☐

Column display width in pixels *: **B**
(This is 200 pixels)

Mandatory field *: ☐

Show contents to public *: ☒

Show field on submission form *: ☒

Link settings

Active custom links: ☒ DbSNP ☐ GenBank ☐ OMIM ☐ PubMed [Select all](#) **C**

Enter your password for authorization:

D

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Figure 4.5: The data type wizard will automatically fill the fields “MySQL data type” and “Form type” (A). Choose column settings (B), specific custom links for this column (C), confirm with your password and press “Create new custom phenotype data column” (D) when you are ready.

4.2 Managing custom columns

The screenshot displays the LOVD3 web interface. At the top, the header includes the LOVD3 logo, the text "LOVD - Leiden Open Variation Database", and "abhydrolase domain containing 12 (ABHD12)". The user is logged in as "Manager". The navigation bar contains tabs for Genes, Transcripts, Variants, Individuals, Diseases, Screenings, Submit, Users, Configuration, Setup, and Documentation. The "Setup" tab is active, showing a dropdown menu with options: "LOVD system settings", "Create new custom data column", "Browse all custom data columns" (highlighted with a red box and arrow A), "Download all LOVD custom columns", "Create a new custom link", "Browse all available custom links", "Download all data", "Import data", and "View system logs". The main content area is titled "LOVD Setup" and contains several sections: "General LOVD Setup", "Authorized users", "Custom data columns" (with a red box and arrow B around the "Browse all custom data columns already available to enable or disable them, or view or edit their settings." link), "Custom links", "Download & Import", and "System logs". The left sidebar shows database statistics: "Leiden Open Variation Database", "Installed : 2015-02-02", "Updated : -", "Statistics", "Users : 2", "Log entries : 14", "Individuals : 0", "Genes : 1", "Variants : 1", and "Total : 0". The footer indicates "Powered by LOVD v.3.0 Build 12" and "©2004-2015 Leiden University Medical Center".

Figure 4.6: You can browse all custom columns via the “Browse all custom data columns” link from the Setup drop down menu tab (A), or you can select “Browse all custom data columns (...)” from the Setup area (B).

LOVD³ LOVD - Leiden Open Variation Database
abhydrolase domain containing 12 (ABHD12)
Curator: Manager

Genes Transcripts Variants Individuals Diseases Screenings Submit Users Configuration Setup Documentation

Browse custom data columns

Please note that these are all columns available in this LOVD installation. This is not the list of columns actually added to the system. Also, modifications made to the columns added to the system are not shown.

7 entries on 1 page. Showing entries 1 - 7.

100 per page Legend

Category	ID	Heading	Active	HGVS	Standard	Public	Order	Created by
pheno								
Phenotype	Age/Onset	Age of onset	X	X	X	X	1	LOVD
Phenotype	Date	Date	X	X	X	X	5	LOVD
Phenotype	Age	Age examined	X	X	X	X	10	LOVD
Phenotype	Length	Length	X	X	X	X	200	LOVD
Phenotype	Additional	Phenotype details	X	X	X	X	250	LOVD
Phenotype	Inheritance	Inheritance	X	X	X	X	254	LOVD
Phenotype	Neurography_EMG	Neurography and EMG	X	X	X	X		Manager

100 per page Legend

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Figure 4.7: If you want to display custom columns only applicable for phenotype, you can use the headers as a filter (A). Or you can use the menu on the left (B) and select “Show only Phenotype columns”. Look for your newly created custom column (C). You can see that your new custom column is not active yet. Click anywhere on the row to go to the details of your custom column.

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abhydrolase domain containing 12 (ABHD12)
Curator: Manager

Genes Transcripts Variants Individuals Diseases Screenings Submit Users Configuration Setup Documentation

View custom data column Phenotype/Neurography_EMG

Data category	Phenotype
Column ID	Neurography_EMG
Column heading	Neurography and EMG
Active in LOVD?	X
HGVS required column	X
Standard/Enabled by default	X
Mandatory	X
Description on form	-
Description on short legend	Short description
Description on full legend	Full legend
Database type	TEXT
Form type	Select (multiple; 6 options)
Select options	Neurography and EMG[select]4[false]true[false]
Show to public	X
Show on submission form	X
Include in search form	X
Created by	Manager
Date created	2015-03-04 11:37:03

Options

- Enable column
- Disable column
- Delete column
- Edit custom data column settings
- Re-order all Phenotype columns

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Figure 4.8: Click the Options drop down menu and click “Enable column”. If you click “Edit custom data column settings”, you will go to the form “Edit custom data column”. This form is similar to the form “Create custom data column”, see figure 4.3.

Figure 4.9: Select to which disease you want to add the custom column, in our example we select PHARC. You can select multiple diseases, see help text for how to select multiple diseases. Confirm with your password.

ID	Heading	Active	HGVS	Standard	Public	Order	Form type	Created by
<input type="checkbox"/>	Age/Onset	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	Text (10 chars)	LOVD
<input type="checkbox"/>	Date	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	Text (10 chars)	LOVD
<input type="checkbox"/>	Age examined	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10	Text (10 chars)	LOVD
<input type="checkbox"/>	Length	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	200	Text (3 chars)	LOVD
<input type="checkbox"/>	Additional	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	250	Textarea (40 cols, 4 rows)	LOVD
<input type="checkbox"/>	Inheritance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	254	Select (11 options)	LOVD
<input type="checkbox"/>	Neurography and EMG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	255	Select (multiple; 6 options)	Manager

Figure 4.10: In the view “Browse custom data columns” you can see that your custom column is now Active (A).

If you want to change the settings of your custom column go to the “View custom data column” page, see figure 4.8 and click “Edit custom data column settings”.

5. Creating a custom link

The objective of this chapter is:

1. Create new custom link.

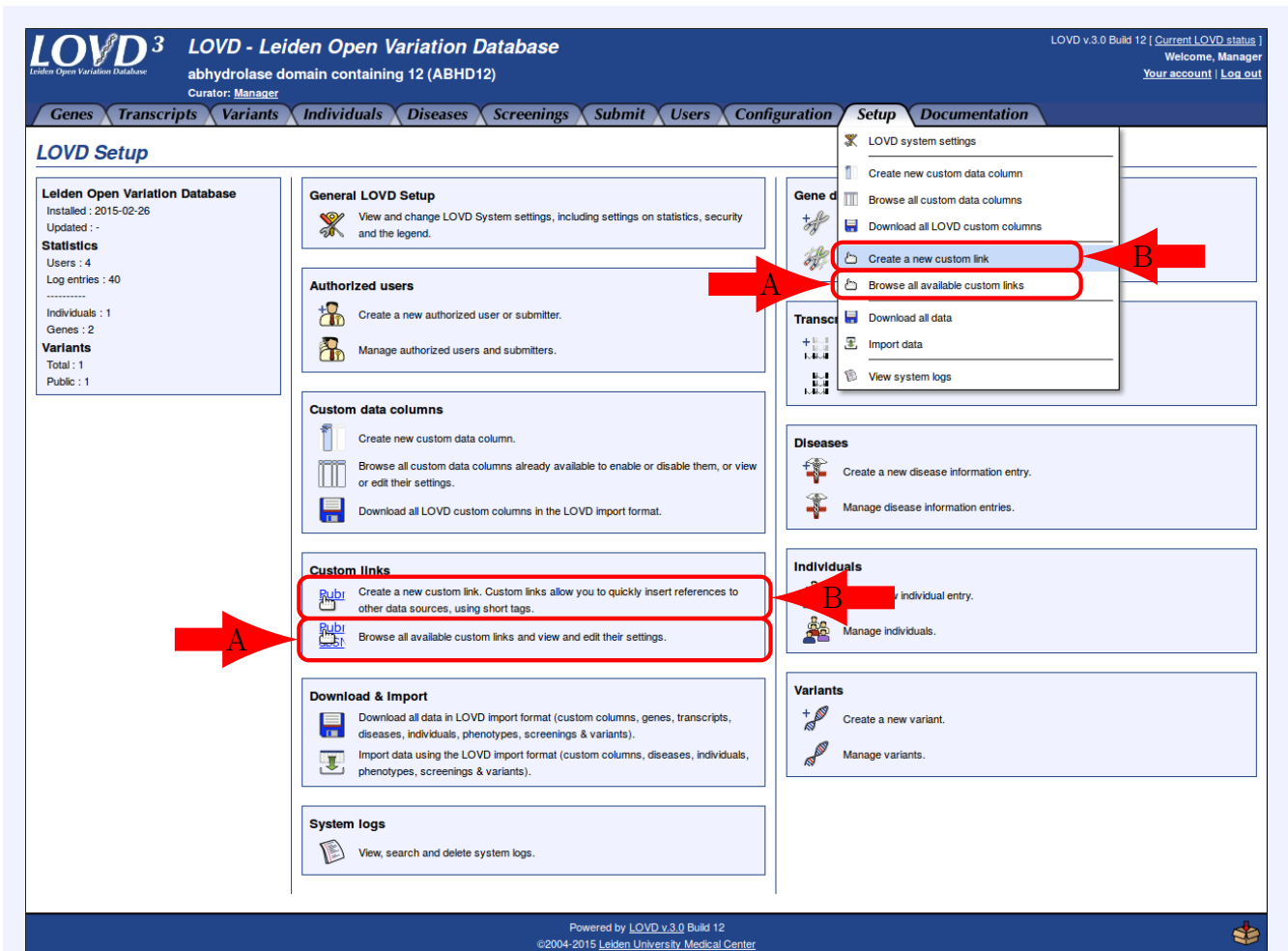


Figure 5.1: From the Setup area you can go to “Browse all available custom links” (A). LOVD has some predefined links: DbSNP, GenBank, OMIM, PubMed and DOI. For the purpose of the course we removed the DOI custom link.

Now we will create a new custom link for DOIs. Click on the “Create a new custom link” link from the Setup drop down menu tab, or select “Create a new custom link” from the Setup area (B).

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 abhydrolase domain containing 12 (ABHD12)
 Curator: Manager

Genes Transcripts Variants Individuals Diseases Screenings Submit Users Configuration Setup Documentation

Create a new custom link

To create a new custom link, please fill out the form below.

Link name
 DOI

Pattern
 {DOI:[1]:[2]}

Replacement text
 [1]

Link description
 Links directly to an article using the DOI.
 [1] = The name of the author(s), possibly followed by the year of publication.
 [2] = The DOI.
 Example:
 {DOI:Fokkema et al. (2011):10.1002/humu.21438}

Active for columns

Link settings

- Individual/Death/Cause (Cause of death)
- Individual/Gender (Gender)
- Individual/Lab_ID (Lab-ID)
- Individual/Origin/Ethnic (Ethnic origin)
- Individual/Origin/Geographic (Geographic origin)
- Individual/Origin/Population (Population)
- Individual/Reference (Reference)
- Individual/Remarks (Remarks)
- Individual/Remarks_Non_Public (Remarks (non public))
- Phenotype columns
- Phenotype/Additional (Phenotype details)
- Phenotype/Age (Age examined)
- Phenotype/Age/Onset (Age of onset)
- Phenotype/Inheritance (Inheritance)
- Phenotype/Neurography_EMG (Neurography and EMG)
- Screening columns
- Screening/Technique (Technique)
- Screening/Template (Template)
- Screening/Tissue (Tissue)
- VariantOnGenome columns

Create custom link

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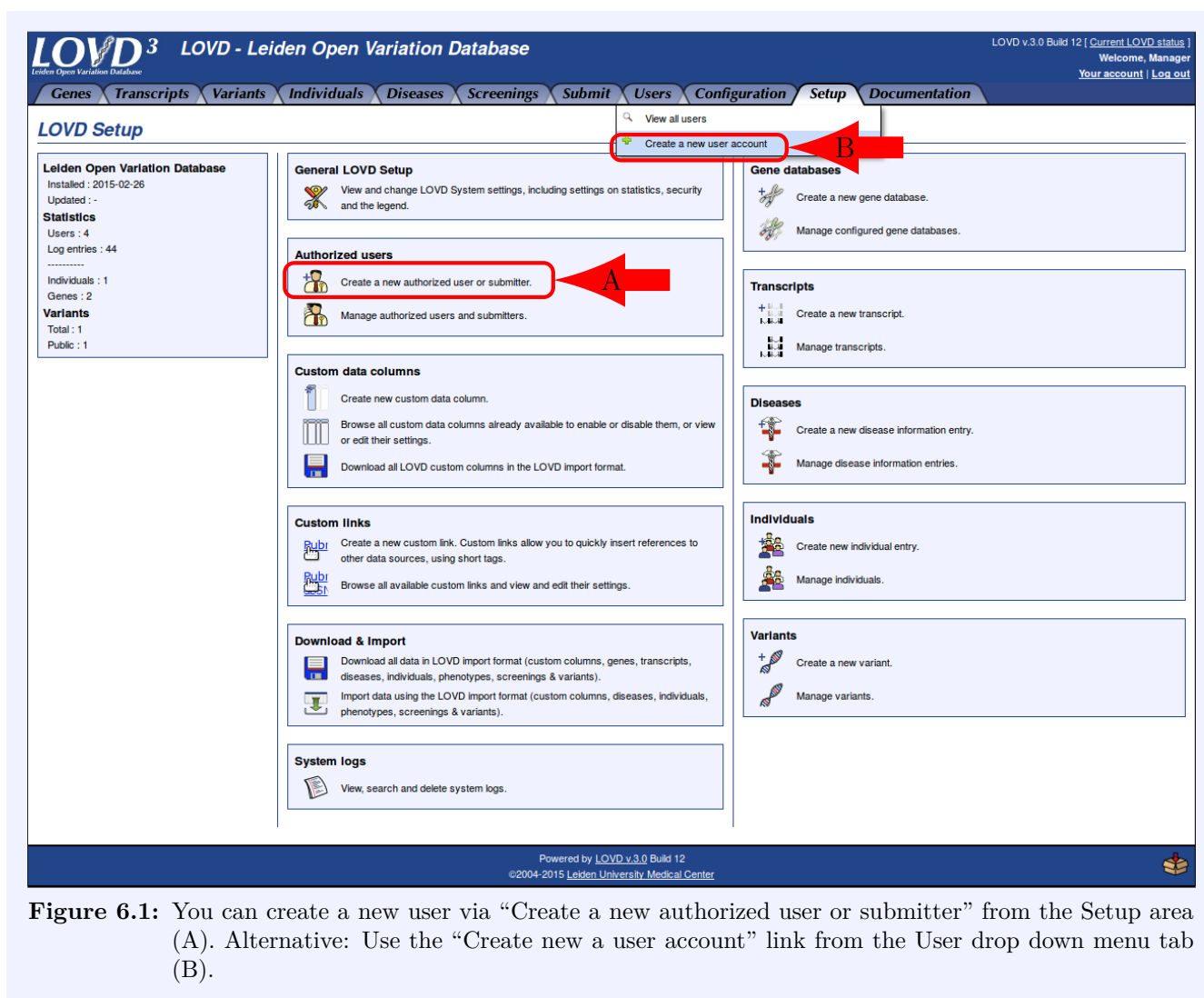
Figure 5.2: Choose a name and pattern that curators need to use for LOVD to recognize the custom link (A). Enter the (HTML enabled) text that should replace the entire pattern (B). You need to use the same number of references that you used in the pattern. Provide a short description about this link (C). Select the columns for which you want this custom link to be activated (D). When you are ready, click “Create custom link”.

6. Creating and managing users

The objective of this chapter is:

1. Create new user.
2. Manage user.
3. Make user curator.

6.1 Create users



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Create a new user account

[ORCID](#) provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. [Find out more.](#)
 Don't have an ORCID ID yet? Please consider to [get one](#), it only takes a minute.

Please enter this user's ORCID ID

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Figure 6.2: You can use individual's ORCID ID to create a new user, but this is not mandatory. Click "This user doesn't have an ORCID ID" if you do not want to use an ORCID ID.

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Create a new user account

To create a new user, please fill out the form below.

User details

Name

Institute

Department (optional)

Postal address

Email address(es), one per line

Telephone (optional)

Username

Password

Password (confirm)

Must change password at next logon ☐

Referencing the lab

Country

City

Reference (optional)

Security

Level

Allowed IP address list

Your current IP address: 127.0.0.1
 Please be extremely careful using this setting. Using this setting too strictly, can deny the user access to LOVD, even if the correct credentials have been provided.
 Set to "" to allow all IP addresses, use "-" to specify a range and use ";" to separate addresses or ranges.

Locked ☐

Send email with account details to user ☒

Enter your password for authorization

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Figure 6.3: Enter the credentials of the new user and confirm with your password.

6.2 Manage users

The screenshot shows the LOVD 3 Setup page. The 'Users' menu tab is highlighted with a red circle and an arrow labeled 'B'. In the 'Authorized users' section, the 'Manage authorized users and submitters' option is highlighted with a red circle and an arrow labeled 'A'.

LOVD Setup

Leiden Open Variation Database
 Installed : 2015-02-26
 Updated : -
Statistics
 Users : 5
 Log entries : 45

 Individuals : 1
 Genes : 2
Variants
 Total : 1
 Public : 1

General LOVD Setup
 View and change LOVD System settings, including settings on statistics, security and the legend.

Authorized users
 Create a new authorized user or submitter.
 Manage authorized users and submitters.

Custom data columns
 Create new custom data column.
 Browse all custom data columns already available to enable or disable them, or view or edit their settings.
 Download all LOVD custom columns in the LOVD import format.

Custom links
 Create a new custom link. Custom links allow you to quickly insert references to other data sources, using short tags.
 Browse all available custom links and view and edit their settings.

Download & Import
 Download all data in LOVD import format (custom columns, genes, transcripts, diseases, individuals, phenotypes, screenings & variants).
 Import data using the LOVD import format (custom columns, diseases, individuals, phenotypes, screenings & variants).

System logs
 View, search and delete system logs.

Gene databases
 Create a new gene database.
 Manage configured gene databases.

Transcripts
 Create a new transcript.
 Manage transcripts.

Diseases
 Create a new disease information entry.
 Manage disease information entries.

Individuals
 Create new individual entry.
 Manage individuals.

Variants
 Create a new variant.
 Manage variants.

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Figure 6.4: You can edit a user via “Manage authorized users and submitters” from the Setup area (A). Or click the Users menu tab (B).

The screenshot shows the LOVD 3 View user accounts page. A table lists the users, and the row for 'Daan Asscheman' is highlighted with a red circle and an arrow.

View user accounts

5 entries on 1 page. Showing entries 1 - 5.
 100 per page Legend

ID	ORCID	Name	Username	Institute	Country	Curated DBs	Status	Last login	Started	Level
00001		LOVD3 Admin	admin	Leiden University Medical Center	Netherlands	1	-	2015-02-26	2015-02-26	Database administrator
00002		Manager	manager	Leiden University Medical Center	Netherlands	1	-	2015-03-04	2015-02-26	Manager
00003		Curator	curator	Leiden University Medical Center	Netherlands	1	-	2015-02-26	2015-02-26	Curator
00005		Daan Asscheman	asscheman	LUMC	Netherlands	1	-	2015-02-26	2015-03-04	Submitter
00004		Submitter	submitter	Leiden University Medical Center	Netherlands	0	-	2015-02-26	2015-02-26	Submitter

100 per page Legend

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Figure 6.5: Click on the user you want to edit.

The screenshot shows the LOVD - Leiden Open Variation Database interface. The top navigation bar includes links for Genes, Transcripts, Variants, Individuals, Diseases, Screenings, Submit, Users, Configuration, Setup, and Documentation. The 'Users' tab is active. The page title is 'View user account #00005'. Below the title is a table of user details for user #00005, Daan Asscheman. At the bottom of the table is an 'Options' dropdown menu with a red box and arrow pointing to the 'Edit user' option. The footer indicates the page is powered by LOVD v.3.0 Build 12 and is ©2004-2015 Leiden University Medical Center.

Field	Value
User ID	00005
ORCID ID	-
Name	Daan Asscheman
Institute	LUMC
Department	Human Genetics
Telephone	-
Address	Eindhovenweg 20 2333 ZC Leiden
City	Leiden
Country	Netherlands
Email address	d.asscheman@lumc.nl
Reference	-
Username	asscheman
Force change password	No
Session ID	-
Saved work	N/A
Curator for 0 genes	-
Collaborator for 0 genes	-
Data owner for 0 data entries	-
User level	Submitter
Allowed IP address list	*
Status	Offline
Locked	No
Last login	-
Created by	Manager
Date created	2015-03-04 13:07:08
Last edited by	N/A
Date last edited	N/A

Options

- Edit user
- Lock user
- Delete user
- Download all this user's data

Figure 6.6: Click the Options drop down menu and select “Edit user”. You will go to the form “Edit user”, this form is similar to the form “Create user account”, see figure 6.3.

6.3 Make user curator

LOVD³ LOVD - Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12)
 Curator: Manager

Genes Transcripts Variants Individuals Diseases Screenings Submit Users Configuration Setup Documentation

View gene ABHD12

General information	
Gene symbol	ABHD12
Gene name	abhydrolase domain containing 12
Chromosome	20
Chromosomal band	p11.21
Imprinted	Unknown
Genomic reference	NC_000020.10
Transcript reference	NM_001042472.2
Associated with diseases	PHARC
Citation reference(s)	-
Allow public to download all variant entries	X
Allow data to be indexed by WikiProfessional	X
Curators (1)	Manager
Collaborators (0)	-
Total number of public variants reported	0
Unique public DNA variants reported	0
Individuals with public variants	0
Hidden variants	0
Created by	Manager
Date created	2015-03-04 11:11:32
Last edited by	N/A
Date last edited	N/A
Last updated by	N/A
Date last updated	N/A

Links to other resources	
HGNC	15868
Entrez Gene	26090
PubMed articles	ABHD12
OMIM - Gene	613599
OMIM - Diseases	PHARC (polyneuropathy, hearing loss, ataxia, retinitis pigmentosa and cataract)

Options

- Edit gene information
- Add transcript(s) to gene
- Delete gene entry
- Add/remove curators/collaborators
- Empty this gene database
- View graphs about this gene database
- View enabled variant columns
- Re-order enabled variant columns
- View all available variant columns
- Download all this gene's data
- Create human-readable refseq file

NCBI ID: NM_001042472.2 NCBI Protein ID: NP_001035937.1 Variants: 0

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Figure 6.7: On the “View gene” page you can see who curator is for a gene (A), in our example this is only the manager.

We will make our new user curator for the ABHD12 gene. Click on “Add/remove curators/collaborators”(B).

LOVD³ LOVD - Leiden Open Variation Database
 Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12)

LOVD v.3.0 Build 12 [[Current LOVD status](#)]
 Welcome, Manager
[Your account](#) | [Log out](#)

[Genes](#) [Transcripts](#) [Variants](#) [Individuals](#) [Diseases](#) [Screenings](#) [Submit](#) [Users](#) [Configuration](#) [Setup](#) [Documentation](#)

Authorize curators for the ABHD12 gene

The following users are currently not a curator for this gene. Click on a user to select him/her as Curator or Collaborator.

4 entries on 1 page. Showing entries 1 - 4.

10 per page [Legend](#)

ORCID	Name	Username	Institute	Country	Curated DBs	Level
	LOVD3 Admin	admin	Leiden University Medical Center	Netherlands		1 Database administrator
	Curator	curator	Leiden University Medical Center	Netherlands		1 Curator
	Daan Asscheman	asscheman	LUMC	Netherlands		0 Submitter
	Submitter	submitter	Leiden University Medical Center	Netherlands		0 Submitter

10 per page [Legend](#)


All users below have access to all data (public and non-public) of the ABHD12 gene database. If you don't want to give the user access to *edit* any of the data that is not their own, deselect the "Allow edit" checkbox. Please note that users with level Manager or higher, cannot be restricted in their right to edit all information in the database. Users without edit rights are called Collaborators. Users having edit rights are called Curators; they receive email notifications of new submission and are shown on the gene's home page by default. You can disable that below by deselecting the "Shown" checkbox next to their name. To sort the list of curators for this gene, click and drag the ↑ icon up or down the list. Release the mouse button in the preferred location.

Name	Allow edit	Shown
↑ Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Enter your password for authorization

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Figure 6.8: Click the user you want to add as a curator.

LOVD³ LOVD - Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12) 
 Curator: Manager

LOVD v.3.0 Build 12 | [Current LOVD status](#)
 Welcome, Manager
[Your account](#) | [Log out](#)

[Genes](#) [Transcripts](#) [Variants](#) [Individuals](#) [Diseases](#) [Screenings](#) [Submit](#) [Users](#) [Configuration](#) [Setup](#) [Documentation](#)

Authorize curators for the ABHD12 gene


 The following users are currently not a curator for this gene. Click on a user to select him/her as Curator or Collaborator.



3 entries on 1 page. Showing entries 1 - 3.

10 per page [Legend](#)

ORCID	Name	Username	Institute	Country	Curated DBs	Level
	LOVD3 Admin	admin	Leiden University Medical Center	Netherlands	1	Database administrator
	Curator	curator	Leiden University Medical Center	Netherlands	1	Curator
	Submitter	submitter	Leiden University Medical Center	Netherlands	0	Submitter

10 per page [Legend](#)

 All users below have access to all data (public and non-public) of the ABHD12 gene database. If you don't want to give the user access to *edit* any of the data that is not their own, deselect the "Allow edit" checkbox. Please note that users with level Manager or higher, cannot be restricted in their right to edit all information in the database. Users without edit rights are called Collaborators. Users having edit rights are called Curators; they receive email notifications of new submission and are shown on the gene's home page by default. You can disable that below by deselecting the "Shown" checkbox next to their name. To sort the list of curators for this gene, click and drag the ↑ icon up or down the list. Release the mouse button in the preferred location.

Name	Allow edit	Shown
↑ Manager	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 
↑ Daan Asscheman	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 

Enter your password for authorization


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Figure 6.9: The user will appear in the list of curators. You can make the user a collaborator by unchecking the “Allow edit” field, the user can still see all public and unpublic data in this gene database, but he can’t edit it, like curators can.

The “Shown” checkbox indicates whether or not the user’s name and email address is shown on the gene homepage and on the top of every page while this gene is selected.

To remove an user as a curator or collaborator, click the red cross at the far right side of the table. Confirm with your password.

LOVD³ Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12)
 Curators: [Manager](#) and [Daan Asscheman](#)

LOVD v.3.0 Build 12 [[Current LOVD status](#)]
 Welcome, [Manager](#)
[Your account](#) | [Log out](#)

[Genes](#) [Transcripts](#) [Variants](#) [Individuals](#) [Diseases](#) [Screenings](#) [Submit](#) [Users](#) [Configuration](#) [Setup](#) [Documentation](#)

View user account #00005

User ID	00005
ORCID ID	-
Name	Daan Asscheman
Institute	LUMC
Department	Human Genetics
Telephone	-
Address	Eindhovenweg 20 2333 ZC Leiden
City	Leiden
Country	Netherlands
Email address	d.asscheman@lumc.nl
Reference	-
Username	asscheman
Force change password	No
Session ID	-
Saved work	N/A
Curator for 1 gene	ABHD12
Collaborator for 0 genes	-
Data owner for 0 data entries	-
User level	Curator
Allowed IP address list	*
Status	Offline
Locked	No
Last login	-
Created by	Manager
Date created	2015-03-04 13:07:08
Last edited by	N/A
Date last edited	N/A


[Options](#)

Log entries by this user

No logs found!

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Figure 6.10: In the “View user account” you will see that the gene is added to “Curator for”.

LOVD³ LOVD - Leiden Open Variation Database
 abhydrolase domain containing 12 (ABHD12) 
 Curators: [Manager](#) and [Daan Asscheman](#)


LOVD v.3.0 Build 12 | [Current LOVD status](#)
 Welcome, [Manager](#)
[Your account](#) | [Log out](#)

[Genes](#) [Transcripts](#) [Variants](#) [Individuals](#) [Diseases](#) [Screenings](#) [Submit](#) [Users](#) [Configuration](#) [Setup](#) [Documentation](#)

View gene ABHD12

General information	
Gene symbol	ABHD12
Gene name	abhydrolase domain containing 12
Chromosome	20
Chromosomal band	p11.21
Imprinted	Unknown
Genomic reference	NC_000020.10
Transcript reference	NM_001042472.2
Associated with diseases	PHARC
Citation reference(s)	-
Allow public to download all variant entries	<input checked="" type="checkbox"/>
Allow data to be indexed by Wikipedia	<input checked="" type="checkbox"/>
Curators (2)	Manager and Daan Asscheman
Collaborators (0)	
Total number of public variants reported	0
Unique public DNA variants reported	0
Individuals with public variants	0
Hidden variants	0
Created by	Manager
Date created	2015-03-04 11:11:32
Last edited by	N/A
Date last edited	N/A
Last updated by	N/A
Date last updated	N/A

Links to other resources	
HGNC	15868
Entrez Gene	26090
PubMed articles	ABHD12
OMIM - Gene	613599
OMIM - Diseases	PHARC (polynuropathy, hearing loss, ataxia, retinitis pigmentosa and cataract)

 **Options**

Active transcripts

ID	Chr	Name	NCBI ID	NCBI Protein ID	Variants
00003	20	transcript variant 1	NM_001042472.2	NP_001035937.1	0

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Figure 6.11: In the “View gene” you can see that the user is added to Curators.