

The image features a dark background with a network diagram of miRNAs. Nodes are represented by small squares and circles. Three specific nodes are highlighted with light blue squares and labeled: 'hsa-mir-369-5p' at the top right, 'hsa-mir-29b-3p' in the center, and 'hsa-mir-23a-3p' at the bottom right. Other nodes are shown as orange circles. A central blue box contains the title 'miRNet Tutorial Network Creation' in white text.

# miRNet Tutorial Network Creation

# Goal for this tutorial

- Perform data filtering on the interaction table
- Perform nodes management on the original network

# Initial interaction table

Microarray Profiling > Interaction Table

Click here to perform data filtering

Click here to delete individual interaction.

Search items by keywords

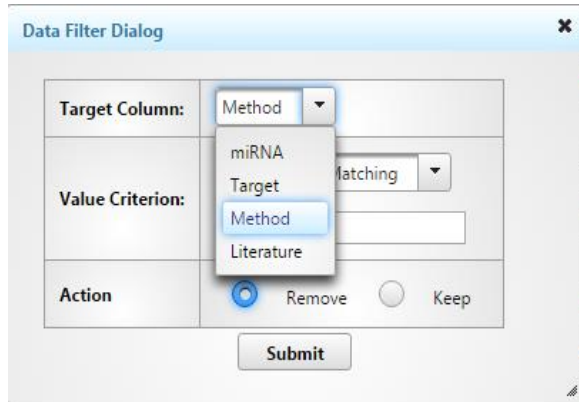
The experimental methods for validation. ( For *S.mansoni* is miRanda score)

miRNA	Link	Target:Gene	Link	Method	Liter
hsa-mir-1-1	<a href="#">miRBase</a>	CCND1	<a href="#">Entrez</a>	Microarray	<a href="#">233135</a>
hsa-mir-1-1	<a href="#">miRBase</a>	FRN1	<a href="#">Entrez</a>	Proteomics	<a href="#">Search TarBase</a>
hsa-mir-1-1	<a href="#">miRBase</a>	L1CAM	<a href="#">Entrez</a>	Proteomics	<a href="#">Search TarBase</a>
hsa-mir-1-1	<a href="#">miRBase</a>	MCM2	<a href="#">Entrez</a>	Proteomics	<a href="#">Delete</a>
hsa-mir-1-1	<a href="#">miRBase</a>	MCM3	<a href="#">Entrez</a>	Proteomics	<a href="#">Delete</a>
hsa-mir-1-1	<a href="#">miRBase</a>	MCM4	<a href="#">Entrez</a>	Proteomics	<a href="#">Delete</a>
hsa-mir-1-1	<a href="#">miRBase</a>	MCM5	<a href="#">Entrez</a>	Proteomics	<a href="#">Search TarBase</a>
hsa-mir-1-1	<a href="#">miRBase</a>	MCM6	<a href="#">Entrez</a>	Proteomics	<a href="#">Search TarBase</a>
hsa-mir-1-1	<a href="#">miRBase</a>	MCM7	<a href="#">Entrez</a>	Proteomics	<a href="#">Search TarBase</a>
hsa-mir-1-1	<a href="#">miRBase</a>	PNP	<a href="#">Entrez</a>	Microarray	<a href="#">23313552</a>

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# Perform Data Filtering

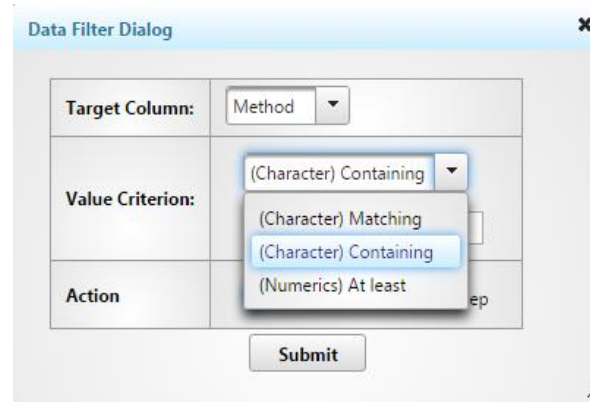


The screenshot shows the 'Data Filter Dialog' window. The 'Target Column:' dropdown is open, showing options: 'Method', 'miRNA', 'Target', 'Method', and 'Literature'. The 'Value Criterion:' dropdown is set to 'Matching'. The 'Action' section has 'Remove' selected with a radio button. A 'Submit' button is at the bottom.

Target Column:	Method
Value Criterion:	Matching
Action	<input checked="" type="radio"/> Remove <input type="radio"/> Keep

Submit

Step 1 : Choose a target column which you want to perform the filter.

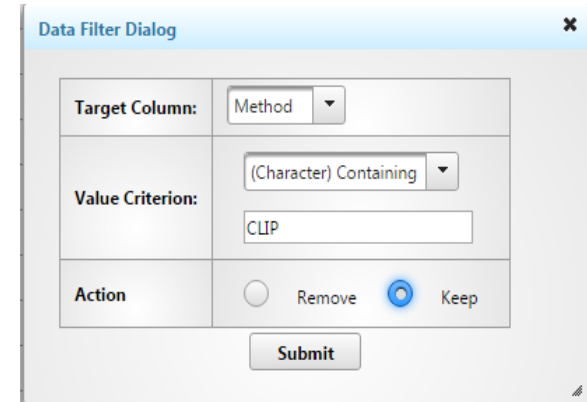


The screenshot shows the 'Data Filter Dialog' window. The 'Target Column:' dropdown is set to 'Method'. The 'Value Criterion:' dropdown is open, showing options: '(Character) Containing', '(Character) Matching', '(Character) Containing', and '(Numerics) At least'. The 'Action' section has 'Keep' selected with a radio button. A 'Submit' button is at the bottom.

Target Column:	Method
Value Criterion:	(Character) Containing
Action	<input type="radio"/> Remove <input checked="" type="radio"/> Keep

Submit

Step 2 : Choose the filter option, “Matching” is filtering by the exact words, “Containing” is filtering by keywords, “At least” is filtering by predicted score (only for *S.mansoni*)



The screenshot shows the 'Data Filter Dialog' window. The 'Target Column:' dropdown is set to 'Method'. The 'Value Criterion:' dropdown is set to '(Character) Containing'. The text input field contains 'CLIP'. The 'Action' section has 'Keep' selected with a radio button. A 'Submit' button is at the bottom.

Target Column:	Method
Value Criterion:	(Character) Containing
	CLIP
Action	<input type="radio"/> Remove <input checked="" type="radio"/> Keep

Submit

Step 3 : Input the keywords and perform the filtering to keep or remove

# The table after performing data filter

Only keep the method contains "CLIP"

Microarray Profiling > Interaction Table > Network Builder > Network Viewer

Data Filter

Reset

Download

miRNA	Link	Target:Gene	Link	Method	Literature	Action
<input type="text"/>		<input type="text"/>				
hsa-let-7a-5p	<a href="#">miRBase</a>	CCND1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23446348</a>	<a href="#">Delete</a>
hsa-let-7a-5p	<a href="#">miRBase</a>	RRM1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23592263</a>	<a href="#">Delete</a>
hsa-let-7b-5p	<a href="#">miRBase</a>	CCND1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23446348</a>	<a href="#">Delete</a>
hsa-let-7b-5p	<a href="#">miRBase</a>	CDKN1A	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23446348</a>	<a href="#">Delete</a>
hsa-let-7b-5p	<a href="#">miRBase</a>	RRM1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23592263</a>	<a href="#">Delete</a>
hsa-let-7c-5p	<a href="#">miRBase</a>	CDKN1A	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23446348</a>	<a href="#">Delete</a>
hsa-let-7c-5p	<a href="#">miRBase</a>	RRM1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23592263</a>	<a href="#">Delete</a>
hsa-let-7d-5p	<a href="#">miRBase</a>	CCND1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23446348</a>	<a href="#">Delete</a>
hsa-let-7d-5p	<a href="#">miRBase</a>	CDKN1A	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23446348</a>	<a href="#">Delete</a>
hsa-let-7d-5p	<a href="#">miRBase</a>	RRM1	<a href="#">Entrez</a>	PAR-CLIP	<a href="#">23592263</a>	<a href="#">Delete</a>

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1 2 3 4 5 6 7 8 9 10 >> >>> 10 ▾

Click "Proceed" to the network builder

Previous

Proceed

# Pruning or Expanding Network Data

Home > Microarray Profiling > Interaction Table > Network Builder > Network Viewer

**Network Overview:**

Number of queries:	75
Number of nodes:	1185 (miRNAs: 1142, Targets: 43)
Number of edges:	1738

In some cases, multiple isolated networks will be generated, with a big 'continent' containing most of queries, and several small 'islands' containing one or a few queries. You can select one or more networks for visual analysis in the next step.

	Networks	Nodes	Edges	Queries	
<input checked="" type="checkbox"/>	mirnet1	1185	1738	43	± Download

**Network Tools:**

- Degree Filter
- Betweenness Filter
- Shortest Path Filter
- Update Network
- Reset Network

Summary for the nodes of the network

Perform the network management

Click "Proceed" to the network viewer

Previous Proceed

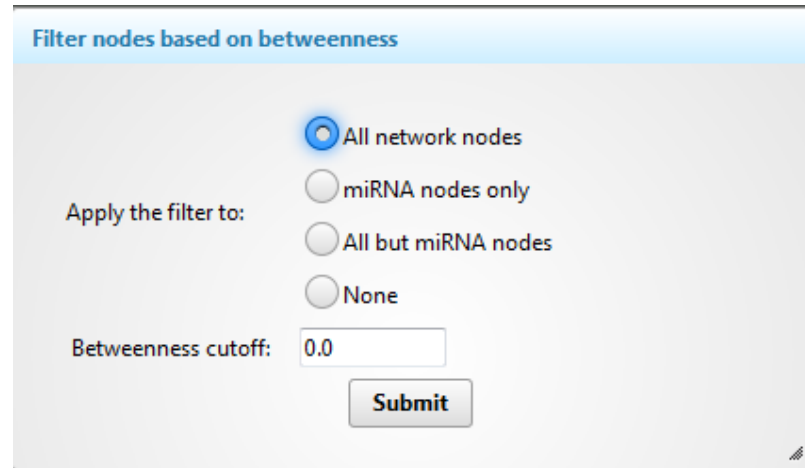
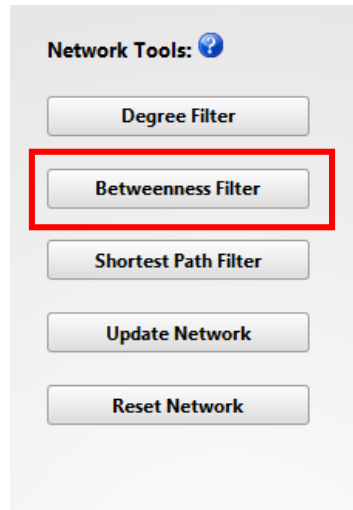
# Network tools

The image shows two parts of a web interface. On the left, a sidebar titled "Network Tools: ?" contains five buttons: "Degree Filter" (highlighted with a red box), "Betweenness Filter", "Shortest Path Filter", "Update Network", and "Reset Network". On the right, a panel titled "Filter nodes based on degree" contains the following controls:

- "Apply the filter to:" with four radio button options:
  - All network nodes
  - miRNA nodes only
  - All but miRNA nodes
  - None
- "Degree cutoff:" with a text input field containing "1.0".
- A "Submit" button.

- The degree of a node is the number of connections it has to other nodes. Nodes with higher node degree act as hubs in a network.
- **Degree cutoff:** default 1.0, the minimal degree you want to choose.
- **All network nodes** : default option, choose all nodes in the network.
- **miRNA nodes only**: the degree filter will only perform in miRNA nodes.
- **All but miRNA nodes** : the degree filter will perform to other nodes except miRNA.
- **None**: Do not perform the filter.

# Network tools



- The **betweenness centrality** measures the number of shortest paths going through the node. It takes into consideration the global network structure. For example, nodes that occur between two dense clusters will have a high betweenness centrality even if their degree centrality values are not high.
- **Degree cutoff**: default 0.0 (all nodes), the minimal betweenness you want to choose.
- **All network nodes** : default option, choose all nodes in the network.
- **miRNA nodes only**: the betweenness filter will only perform in miRNA nodes.
- **All but miRNA nodes** : the betweenness filter will perform to other nodes except miRNA.
- **None**: Do not perform the filter.



# Network tools

The image shows two parts of a software interface. On the left, a 'Network Tools' panel contains five buttons: 'Degree Filter', 'Betweenness Filter', 'Shortest Path Filter' (highlighted with a red box), 'Update Network', and 'Reset Network'. Two blue callout boxes point to the 'Shortest Path Filter' and 'Reset Network' buttons. The first callout says 'Refresh network as new changes.' and the second says 'Reset the network to default.' On the right, a window titled 'Reduce connections between densely connected nodes' is open. It contains a section 'Apply the filter to:' with four radio button options: 'All network nodes' (selected), 'miRNA nodes only', 'All but miRNA nodes', and 'None'. A 'Submit' button is located at the bottom right of this window.

- **Shortest Path Filter** : If there are multiple paths that can link two nodes together, only one shortest path will be chose to reduce dense networks.
- **All network nodes** : default option, choose all nodes in the network.
- **miRNA nodes only**: the filter will only perform in miRNA nodes.
- **All but miRNA nodes** : the filter will perform to other nodes except miRNA.
- **None**: Do not perform the filter.

**==END==**