

# Y-maze IMPC\_YMZ\_001

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## Purpose

The Y-maze is used to assess spontaneous alternation performance as an index of active retrograde working memory in rodents.

## Experimental Design

Minimum number of mutant animals required: 7 males + 7 females

Minimum age of animals: 11 weeks.

Sex: both males and females

## Equipment

Y shaped arena with three arms of identical length at 120° angles.

Camera and computer with tracking software if using video tracking.

## Procedure

1. Transport animals to testing room at least 15 minutes prior to testing.
2. Ensure lighting conditions are as desired and if using video tracking that the camera is working.
3. Remove mouse from its cage and place in the start arm.
4. Either manually score the entries or use the automatic tracking while the mouse explores the arena for the duration of the test. Arm entry is defined differently depending on the scoring system.
  - a. Manual: arm entry is scored when all four paws enter the new location.
  - b. Automated tracking: arm entry is scored when the centre of the mouse enters the new location.
5. Remove mouse from the arena and place back in home cage.
6. Clean area with consistent disinfectant (i.e. ethanol/clidox) before testing next mouse.

## Parameters

	Version	Type	Req. Upload	Req. Analysis	Annotation	Increment	Option	Ontology Options	Derived	Unit	Data Type
<a href="#">Latency to leave start arm IMPC_YMZ_001_001</a>	1.0	simpleParameter	✓		✓					s	FLOAT
<a href="#">Total arm entries IMPC_YMZ_002_001</a>	1.0	simpleParameter	✓		✓						INT
<a href="#">Number of triplets IMPC_YMZ_003_001</a>	1.2	simpleParameter							IMPC_YMZ_002_001 2 -		INT

	Version	Type	Req. Upload	Req. Analysis	Annotation	Increment	Option	Ontology Options	Derived	Unit	Data Type
<a href="#">Number of spontaneous alternations</a> <a href="#">IMPC_YMZ_004_001</a>	1.1	simpleParameter	✓								INT
<a href="#">Alternation ratio</a> <a href="#">IMPC_YMZ_005_001</a>	1.2	simpleParameter			✓				IMPC_YMZ_004_001 IMPC_YMZ_002_001 2 - / 100 *	%	FLOAT
<a href="#">Number of alternate arm entries</a> <a href="#">IMPC_YMZ_006_001</a>	1.1	simpleParameter									INT
<a href="#">Alternate arm entry ratio</a> <a href="#">IMPC_YMZ_007_001</a>	1.3	simpleParameter							IMPC_YMZ_006_001 IMPC_YMZ_002_001 2 - / 100 *	%	FLOAT
<a href="#">Number of same arm entries</a> <a href="#">IMPC_YMZ_008_001</a>	1.1	simpleParameter									INT
<a href="#">Same arm entry ratio</a> <a href="#">IMPC_YMZ_009_001</a>	1.2	simpleParameter							IMPC_YMZ_008_001 IMPC_YMZ_002_001 2 - / 100 *	%	FLOAT
<a href="#">Feacal boli (count)</a> <a href="#">IMPC_YMZ_010_001</a>	1.0	simpleParameter									INT

## Metadata

	Version	Type	Req. Upload	Req. Analysis	Annotation	Increment	Option	Ontology Options	Derived	Unit	Data Type
<a href="#">Acclimatisation time (minimum)</a> <a href="#">IMPC_YMZ_011_001</a>	1.0	procedureMetadata	✓				15 60			min	INT
<a href="#">Arm dimensions</a> <a href="#">IMPC_YMZ_012_001</a>	1.1	procedureMetadata	✓	✓			33.65 L x 6 W x 15 H			cm	TEXT
<a href="#">Light level</a> <a href="#">IMPC_YMZ_013_001</a>	1.0	procedureMetadata	✓				50 20			Lux	INT
<a href="#">Test duration</a> <a href="#">IMPC_YMZ_014_001</a>	1.1	procedureMetadata	✓	✓			8 10			min	INT
<a href="#">Placement in start arm</a> <a href="#">IMPC_YMZ_015_001</a>	1.1	procedureMetadata	✓	✓			Mid-arm End of arm				TEXT
<a href="#">Cleaning agent/disinfectant</a> <a href="#">IMPC_YMZ_016_001</a>	1.0	procedureMetadata	✓				70% Ethanol solution				TEXT
<a href="#">Tracking method</a> <a href="#">IMPC_YMZ_017_001</a>	1.1	procedureMetadata	✓	✓			Video None				TEXT
<a href="#">Scoring method</a> <a href="#">IMPC_YMZ_018_001</a>	1.1	procedureMetadata	✓	✓			Manual Automated				TEXT
<a href="#">Duration at centre prior to arm re-entry</a> <a href="#">IMPC_YMZ_019_001</a>	1.0	procedureMetadata	✓				1			s	INT
<a href="#">Experimenter ID</a> <a href="#">IMPC_YMZ_020_001</a>	1.0	procedureMetadata	✓								TEXT
<a href="#">Maze ID</a> <a href="#">IMPC_YMZ_021_001</a>	1.0	procedureMetadata	✓				y-maze 1 Arena 1 Arena 2				TEXT
<a href="#">Maze manufacturer</a> <a href="#">IMPC_YMZ_022_001</a>	1.0	procedureMetadata	✓	✓			The Jackson Laboratory				TEXT
<a href="#">Maze model</a> <a href="#">IMPC_YMZ_023_001</a>	1.0	procedureMetadata					JAX_YM				TEXT
<a href="#">Tracking equipment ID</a> <a href="#">IMPC_YMZ_024_001</a>	1.0	procedureMetadata					Y tracker Ethovision				TEXT
<a href="#">Tracking equipment manufacturer</a> <a href="#">IMPC_YMZ_025_001</a>	1.1	procedureMetadata		✓			Accuscan Noldus				TEXT
<a href="#">Tracking equipment model</a> <a href="#">IMPC_YMZ_026_001</a>	1.0	procedureMetadata					Opto-Varimex 4				TEXT
<a href="#">Date tracking equipment last calibrated</a> <a href="#">IMPC_YMZ_027_001</a>	1.0	procedureMetadata									DATETIME
<a href="#">Software</a> <a href="#">IMPC_YMZ_028_001</a>	1.1	procedureMetadata		✓			Ethovision 13.0				TEXT

	Version	Type	Req. Upload	Req. Analysis	Annotation	Increment	Option	Ontology Options	Derived	Unit	Data Type
Alternating start arm IMPC_YMZ_029_001	1.0	procedureMetadata	✓	✓			Yes No				TEXT