

# JAXA Biospecimens Sharing List 1 (MHU-1)

Please enter both "Tissue No." and "Tissue name" on your "Biospecimen Request Form".

The number of maximum requests is 3 tissues from all MHU missions.

Tissue No.	Tissue name	Sample No.	Gravity condition	Treatment	Storage
1-4	Skin A	1-6	A1G (1-6)	PFA fixation	-30°C
		7-12	Micro G (7-12)	↓	15ml tube x 18
		13-18	1G (13-18)	MeOH exchange	
1-5	Skin B	1-6	A1G (1-6)	PFA fixation	-30°C
		7-12	Micro G (7-12)	↓	15ml tube x 18
		13-18	1G (13-18)	MeOH exchange	
1-11	Tail A (Skin)	1-6	A1G (1-6)	PFA fixation	-30°C
		7-12	Micro G (7-12)	↓	15ml tube x 18
		13-18	1G (13-18)	MeOH exchange	
1-16	Auricles	1-6	A1G (1-6)	PFA fixation	-30°C
		7-12	Micro G (7-12)	↓	15ml tube x 12
		13-18	1G (13-18)	MeOH exchange	1.5ml tube x 6

## 【Abbreviations】

**A1G:** Artificial 1 G on ISS     **PFA fixation;** 4% paraformaldehyde (WAKO) fixation after dissection in USA (2016.9)

**Micro G:** Micro Gravity on ISS     **MeOH exchange:** Transport to JAXA and exchange for 100% methanol (2016.10)

**1G:** Ground Control

## 【Method: Fixation and exchange】

**PFA fixation:** After 4% PFA fixation (1 day at 4°C), exchange for phosphate buffered salts (PBS) and transport to JAXA (storage at 4°C). Three weeks later from PBS exchange, second fixation by 4% PFA (2 days at 4°C), and PBS re-exchange (storage at 4°C).

**MeOH exchange:** Two weeks later from PBS re-exchange, exchange for MeOH (PBS⇒25% MeOH⇒50% MeOH⇒75% MeOH ⇒100% MeOH), and storage at -30°C

## Reference

**Development of new experimental platform ‘MARS’—Multiple Artificial-gravity Research System—to elucidate the impacts of micro/partial gravity on mice**

*Sci Rep.* 2017 Sep 7;7(1):10837. doi: 10.1038/s41598-017-10998-4. (Shiba D et al., 2017)

## JAXA sample share List 2 (MHU-2)

Please enter both "Tissue No." and "Tissue name" on your "Biospecimen Request Form".

The number of maximum requests is 3 tissues from all MHU missions.

Tissue No.	Tissue name	Sample No.	Gravity condition	Treatment	Storage
2-6	Femur skin D	Micro G, 1-5	Micro G	PFA fixation	-30°C
		A1G, 1-6	A1G	↓	15ml tube x 17
		GC, 1-6	1G	MeOH exchange	
2-14	Auricles	Micro G, 1-6	Micro G	PFA fixation	-30°C
		A1G, 1-6	A1G	↓	15ml tube x 18
		GC, 1-6	1G	MeOH exchange	

### 【Abbreviations】

**A1G:** Artificial 1 G on ISS     **PFA fixation:** 4% paraformaldehyde (WAKO) fixation after dissection in USA (2017.9)

**Micro G:** Micro Gravity on ISS     **MeOH exchange:** Transport to JAXA and exchange for 100% methanol (2017.10)

**1G:** Ground Control (2018.3)

### 【Method: Fixation and exchange】

**PFA fixation:** After 4% PFA fixation (1 day at 4°C), exchange for phosphate buffered salts (PBS) and transport to JAXA

**MeOH exchange:** Forty days later from PBS exchange, exchange for MeOH (PBS⇒25% MeOH⇒50% MeOH⇒75% MeOH⇒100% MeOH), and storage at -30°C

### Reference

#### Dietary intervention of mice using an improved Multiple Artificial-gravity Research System (MARS) under artificial 1g

*NPJ Microgravity*. 2019 Jul 8;5:16. doi: 10.1038/s41526-019-1077-0. (Matsuda C et al., 2019)

## JAXA sample share List 3 (MHU-3)

Please enter both "Tissue No." and "Tissue name" on your "Biospecimen Request Form".

The number of Maximum requests is 3 tissues from all MHU missions.

Tissue No.	Tissue name	Sample No.	Gravity condition	Treatment	Storage
3-1	Head Skin A (Right)	1-12	Micro G (1-12)	LN2	-80°C 5ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-3	Dorsal Skin (upper) B (Right)	1-12	Micro G (1-12)	LN2	-80°C 5ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-4	Dorsal Skin (upper) B (Left)	1-12	Micro G (1-12)	LN2	-80°C 5ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-15	Auricles (Right)	1-12	Micro G (1-12)	LN2	-80°C 5ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-16	Auricles (Left)	1-12	Micro G (1-12)	LN2	-80°C 5ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-19	Seminal gland (Right)	1-12	Micro G (1-12)	LN2	-80°C 2ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-20	Seminal gland (Left)	1-12	Micro G (1-12)	LN2	-80°C 2ml tube x 24
		GC 1-12	1G (GC 1-12)		
3-23	Blood clot	1-12	Micro G (1-12)	LN2	-80°C 1.5ml tube x 24
		GC 1-12	1G (GC 1-12)		

### 【Abbreviations】

**Micro G:** Micro Gravity on ISS    **1G:** Ground Control (at JAXA, 2018.10)    **LN2:** Liquid Nitrogen freezing after dissection

### 【Genotype】

In MHU3, we reared wild type (WT) and Nrf2 Knock Out (Nrf2) mice. Refer to the table below for consistency between the sample No. and genotype.

Micro G No.	1	2	3	4	5	6	7	8	9	10	11	12
<b>Genotype</b>	Nrf2	Nrf2	WT	Nrf2	WT	WT	WT	WT	Nrf2	WT	Nrf2	Nrf2
GC No.	GC 1	GC 2	GC 3	GC 4	GC 5	GC 6	GC 7	GC 8	GC 9	GC 10	GC 11	GC 12
<b>Genotype</b>	Nrf2	Nrf2	WT	Nrf2	WT	WT	WT	WT	Nrf2	WT	Nrf2	Nrf2

### Reference

**Space Travel of Knockout Mice Demonstrates Contribution of Nrf2 to Maintenance of Homeostasis**

*Communications Biology*. 2020 Sep 8;3(1):496. doi: 10.1038/s42003-020-01227-2. (Yamamoto M et al. 2020)