### Standard Score Sheet for the assessment of wellbeing in mice: *enteropathy (inclu. from irradiation)* [Animal facility or facilities:]



CREATE CHANGE

Project title:		
Animal Ethics #	Name of contact person:	
Chief investigator:	Contact number:	
Research Group:	After hours number:	

#### Scoring of wellbeing will be performed relative to the following assessment criteria:

Critoria		Score													
Criteria	0	1 (mild)	2 (moderate)	3 (severe)											
Activity and responsiveness	Normal	Mild/slight reduction in activity relative to normal or previous observations	Isolated from cage-mates or obvious reduction in activity and responsiveness relative to normal or previous observations; alternatively, there is increased response to stimulus (e.g. appears agitated, twitching, easily started, or photophobic)	Stationary while awake for prolonged periods (>15min); when nudged, does not move, or makes poor attempts to move; collapsed and unable to right itself; persistent and prolonged fitting/ trembling (>1min) Facial grimace is obvious (i.e. at least 3 of the 5 "indicators" are "obviously present") however, there must also be indication of other generalised symptoms (e.g. hunching, reduced activity) Generalised piloerection, i.e. obvious, very rough coat over majority of the body's surface area (as demonstrated in image 2)											
Facial grimace (see image 1)	Not present	Facial grimace is subtle or inconsistent (i.e. only 1 to 2 of the "indicators" demonstrated in image 1 are moderately present)	Facial grimace is moderate (i.e. at least 3 of the 5 "indicators" are "moderately present")												
Coat condition (see image 2)	Normal	Coat does not appear entirely smooth, clean and silky (i.e. the coat appears slightly 'rough')	Some indication of piloerection is present (i.e. 'rough' coat), but it is not obvious over the mouse's entire surface area												
Body position/ posture (see image 3)	Normal	Mild hunching (see image 3)	Moderate hunching	Severe hunching: or arching and writhing (despite analgesia having been provided)											
Respiratory function	Normal	-	Increased respiratory effort (mild increases in respiratory rate, increased abdominal movement)	Increased respiratory effort compromising normal behaviours (i.e. the animal is lethargic, isolated and inappropriately responsive); or has slowed respiratory rate and gasping; or is open mouth breathing; or has blue mucous membranes or extremities; or noisy breathing (e.g. respiratory "clicking")											
Body weight loss* (over 3 consecutive days)	<5%	5-9%	10-19%	≥20%											
Faeces (and consideration of rectal prolapse)	Normal	Mild diarrhoea: loose faeces, some mucoid discharge may be present	Diarrhoea: Loose/runny faeces, some mucoid discharge, only scant evidence of blood in the faeces (i.e. "blood spotting"); or small rectal prolapse (<2mm) with mucosa only mildly inflamed and <3 days old.	Profuse diarrhoea: profuse fluid faeces expressed even during handling, or frank blood or melena in faeces; or rectal prolapse that is either >2mm, contains inflamed/ necrotic mucosa, or has failed to resolve within 3 days.											

\*please note: body weight may not need to be measured at each monitoring point, particularly if monitoring is occurring frequently (as the handling associated with this procedure can be stressful for mice). A common-sense approach must be taken e.g. as symptoms progress body weight may need to be measured daily or every other day, whereas "stable" animals (without progression of symptoms) may only require body weight to be measured once a week. Models with enteropathy should consider body condition scores (see image 4) to supplement body weight monitoring.

Cumulative Score:

#### Action, relative to cumulative score:

- 0 = no action (in addition to routine care and monitoring)
- 1 to 4 = symptoms observed, monitor at least daily (including all animals of similar treatment groups), if symptoms are unexpected seek veterinary advice
- 5 to 11 = monitor at least twice daily, provide food/water supplementation (e.g. wet mash or gel pack on the cage floor), if symptoms are unexpected seek veterinary advice
  - > 11 = euthanasia is required (unless otherwise advised by a facility veterinarian)

\*\*\* A score of 3 in any one category = euthanasia is required (unless otherwise advised by a facility veterinarian) \*\*

Comments:

**Image 1. The 5 "indicators" of facial grimace, as per Mouse Grimace Scale:** <u>https://www.nc3rs.org.uk/grimacescales</u> Please note: facial grimace can be subtle and requires experience to be able to assess accurately. If you are not comfortable assessing this parameter, you must seek training and support for this purpose – contact your Chief Investigator and the relevant animal facility staff.

	Not present	Moderately present	Obviously present
Orbital tightening	C.		
Nose bulge			
Cheek bulge			-
Ear position			
Whisker change			

Image 2. Score 3 (severe) for the criteria: "coat condition". This mouse has diffuse piloerection, image source: <u>https://www.humane-endpoints.info/en</u>



Image 3. Hunching, scored from normal (score 0) to severe (score 3), modified from: <u>Sevcik MA, Jonas BM, Lindsay TH, et al. Endogenous opioids inhibit early-stage</u> pancreatic pain in a mouse model of pancreatic cancer. *Gastroenterology*. 2006;131(3):900–910.

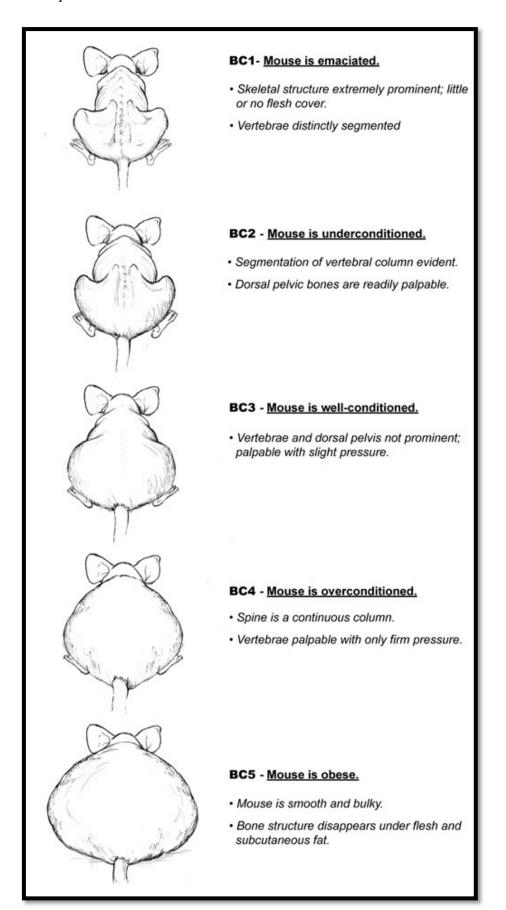
Please note: ear tag-identifiers (as displayed in this image) are generally not considered appropriate for use in mice, as there are other, more refined methods of individual identification.

A Degree of Hunching	B Hunching Profile	Normal (score 0)
C	D	Mild hunching (score 1)
E	F	Moderate hunching (score 2)
G	H	
	J	Severe hunching (score 3)

3

#### Image 4: Mouse, Body Condition Score reference.

"Body Condition Scoring (BC) is a quick, easy and reliable method for assessing mouse health. It utilizes a scoring system of 1 to 5 with 3 being the optimal condition, 1 being emaciated and 5 being obese." Source: <u>Burkholder T, Foltz C, Karlsson E, Linton CG, Smith JM. Health Evaluation of Experimental Laboratory Mice. *Curr Protoc Mouse Biol.* 2012;2:145–165. [Body condition scores should be used with this score sheet "Standard Score Sheet for the assessment of wellbeing in mice" to avoid excessive handling (through repeated weighing) when performing frequent monitoring. Body condition scores complement body weight measurements; however, their use does not contribute to the score sheet's "cumulative score"]</u>



# **Monitoring record** for the assessment of wellbeing in mice: *enteropathy (inclu. from irradiation)* (see "Score Sheet ... mice: enteropathy..." for a description of the scores relative to the criteria below)

Project title: Chief Investigator: Experimental/ Treatment Group:				ne of con	tact pers	on:				AEC approval #: Contact number: Mouse ID:						After hours:			
Date																			
Day (of study)																			
Criteria (scores 0 to 3):																			
Activity & responsiver	ness																		
Facial grimace																			
Coat condition																			
Body position/ posture	e																		
Respiratory function																			
Body weight loss*																			
Body weight change (	%)																		
Body weight (g)																			
Faeces																			
Cumulative score (i.e. total)																			
Comments: (please use a key)																			
*Please note: body	weight may	/ not need	d to be mea	asured at ea	ach monitor	ing point.	. Refer	r to "Sco	ore Sheet	mice:	entero	pathy.	" for deta	ils.	I I			I	
Cumulative score:	: A	ction, rel	ative to cu	umulative s	core:														
0		-		n to routine		onitoring	1)												
1 to 4			•	d, monitor a		-		nimals	of similar t	reatmen	t group	os), cor	nsider seel	ing veterin	ary advic	ce			
5 to 11		• •		e daily, pro	•		•				• ·			•	•		inary a	dvice	
> 11				ed (unless						·	, ,		0	<i>,,</i>		0	,		
*** A score of			•				•	•	,	acilitv v	eterina	rian) *	**						
Original mouse we		16	17	18	19	20		21	22	23		24	25	26	27		28	29	30
	5%	15.2	16.2	17.1	18.1	19.0		20.0	20.9	21.9		22.8	23.8	24.7	25.7	2	26.6	27.6	28.5
Weight loss (%)	10%	14.4	15.3	16.2	17.1	18.0		18.9	19.8	20.7		21.6	22.5	23.4	24.3	2	25.2	26.1	27.0
<i>c v v</i>	15%	13.6	14.5	15.3	16.2	17.0		17.9	18.7	19.6	2	20.4	21.3	22.1	23.0	1	23.8	24.7	25.5

## Monitoring record for the assessment of wellbeing in mice: enteropathy (inlcu. from

*irradiation)* (see "Score Sheet ... mice: enteropathy..." for a description of the scores relative to the criteria below)

Project titl Chief Inves Date:		appi of st				Name of contact person: Contact number: After hours:											
				Crite	eria (s	core	s 0 to	3):									
Mouse ID#	Treatn	nent grou	qı	Activity & responsiveness Facial grimace Coat condition / Body position / posture Respiratory function Body weight loss* Body weight () Body weight () Body weight () Body weight () Body weight () Cumulative score (i.e. total)							Comments:						
**	alaaht								Definit		Chart			n atlant " f	n alast - !!.		
*Note: body w	-	-									e Sheet	mice:	enterc	patny" fo	r details.		
Cumulativ	e score	:						ative				,					
0 1 to	4									and mo			onim	als of sim	ilar trac	otmont	
1 10	-									advice		ing an				auneni	
5 to	11		= m	onitor	at lea	ast tw	ice da	ily, pro	vide f	ood/wa	ater su			on (e.g. w	et mas	sh or ge	el
> 1	<ul> <li>pack on the cage floor), consider seeking veterinary advice</li> <li>&gt; 11 = euthanasia is required (unless otherwise advised by a facility veterinarian)</li> </ul>																
A score of		ny one				•	•					•			,	)***	
		,		, ,												,	
Original mo weight (	g)	16	17	18	19		20	21	22	23	24	25	26		28	29	30
Weight	5%	15.2	16.2	17.1				20.0	20.9	21.9	22.8	23.8	24.		26.6	27.6	28.5
loss (%)	10%	14.4	15.3	16.2				18.9	19.8	20.7	21.6	22.5	23.		25.2	26.1	27.0
	15%	13.6	14.5	15.3	16	.2   1	7.0	17.9	18.7	19.6	20.4	21.3	22.	1 23.0	23.8	24.7	25.5