Needed material

Biological material	Polymodal cages	Software
Mouse	*(TO add if photometry/opto/ephys TTL is needed)* 473 nm laser source[Thorlabs] 593 nm laser sourcePatch Cords Fiber cables Arduino-Uno boardsWebcam	- iSPY (Camera) - POLY - POLYFILES - Arduino IDE 1.8.15 - Bonsai 2.6.2

Safety Information – For more information, look at the complete safety data sheet

General Rules: *is POLY imagine ref.*

the idea is to minimize the stress and disturbance of internal state of the animal as much as possible.

- change gloves; between WT and KO;
- clean in between.....
- Use different weight things
- to mark; you touch the tail, and not press.. then the animal is ok
-

Figure 1

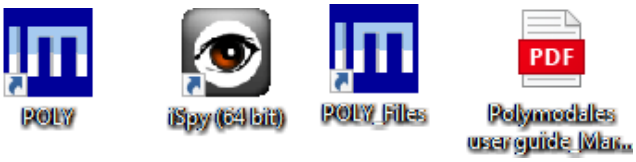
Sensory Preconditioning experiments

Polymodal Cages

Polymodal Cages Preparation

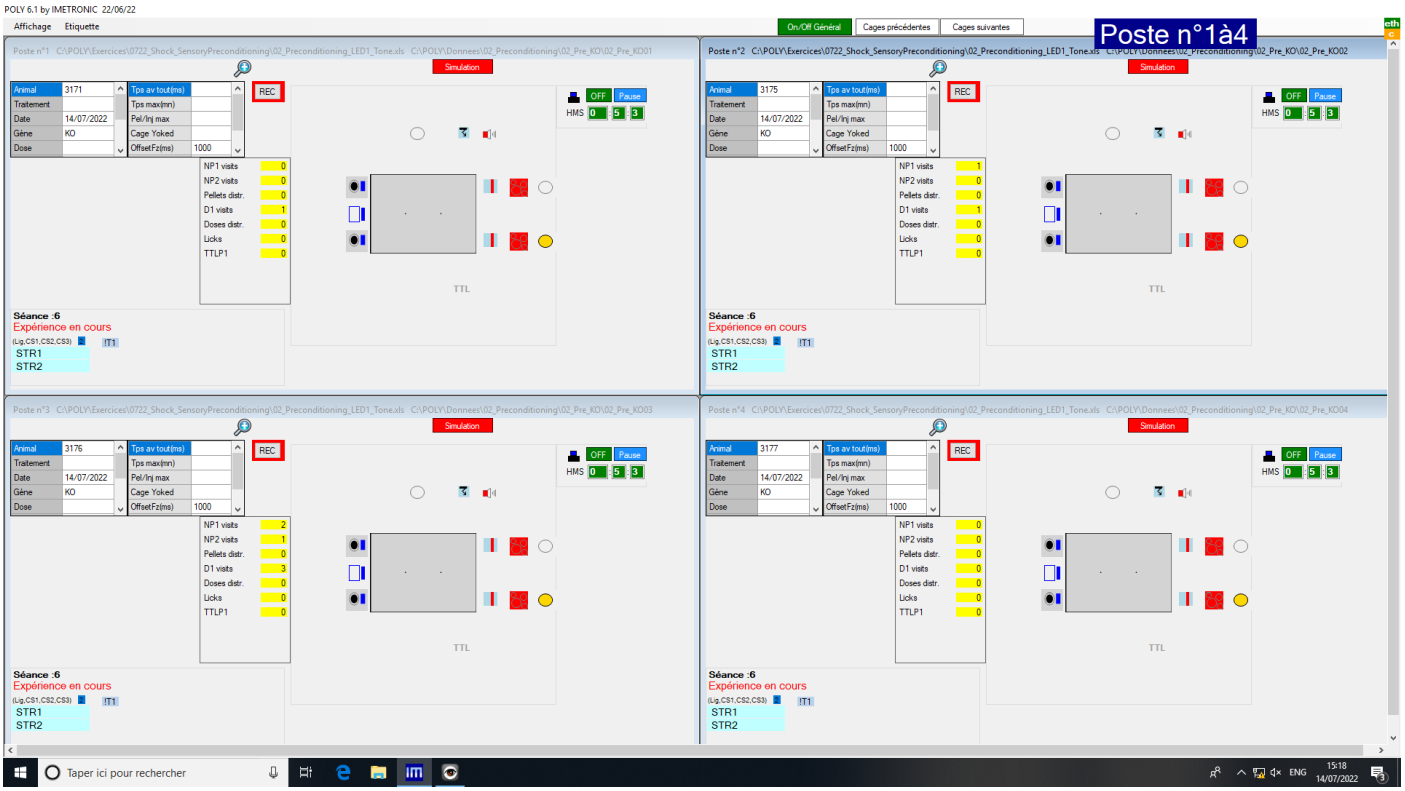
- Turn on the computer and the Polymodal cages unit
- Make sure the postes are well connected and clean

In the desktop/; make sure all required files are there



1) Open **iSPY** software to load the cameras;
- Confirm all is working and detecting.
- Minimize into tray

2) Open **POLY**
- It will load for a bit; and open a screen with the 4 postes
  (Picture 1.2)
  Confirm it is POLY 6.1 by IMETRONIC 20/06/22



As you can see the interface is divided into 4 Postes 1 to 4; which correspond to the cages
Simply the idea here is to
- 1) load an exercise
- 2) Configure animals
- 3) Save/Load a session file

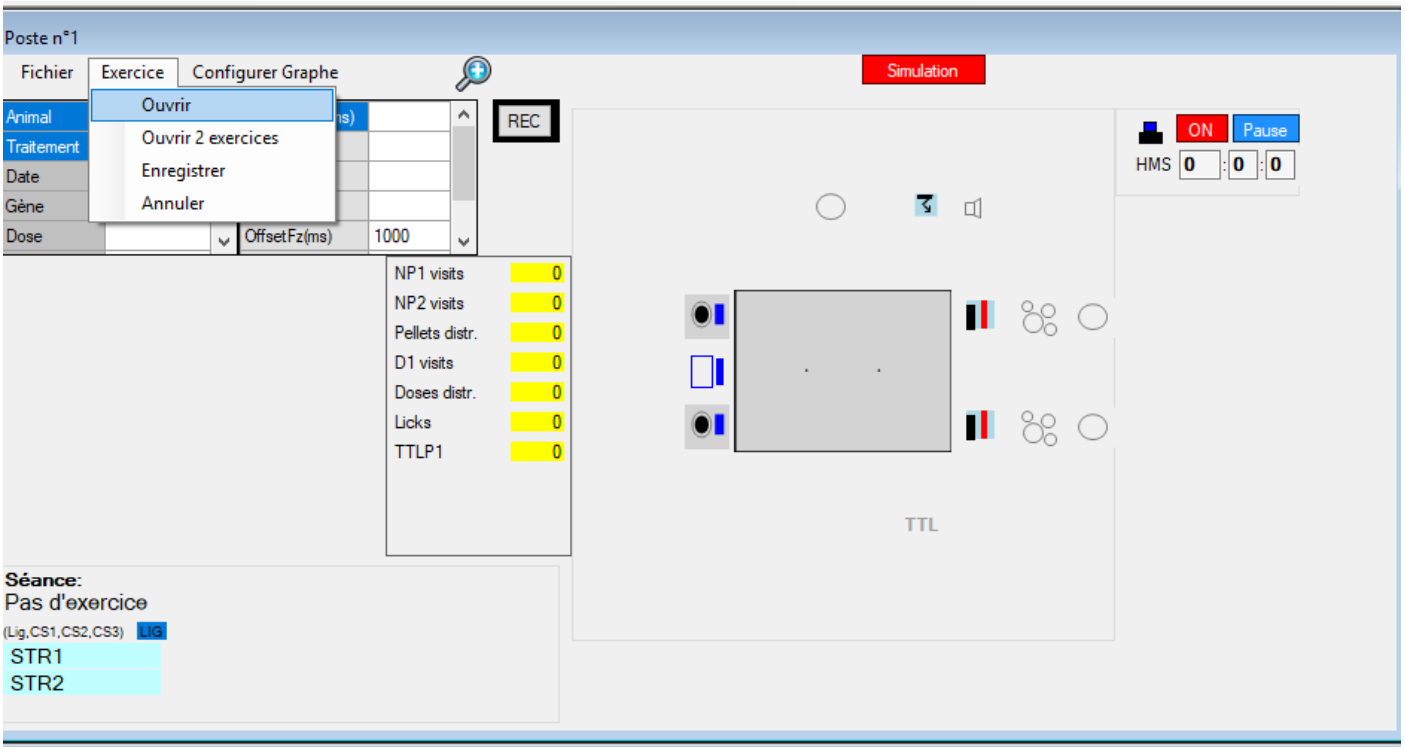
Within that a lot of repetition; yet careful attention to the details

Sensory Preconditioning experiments

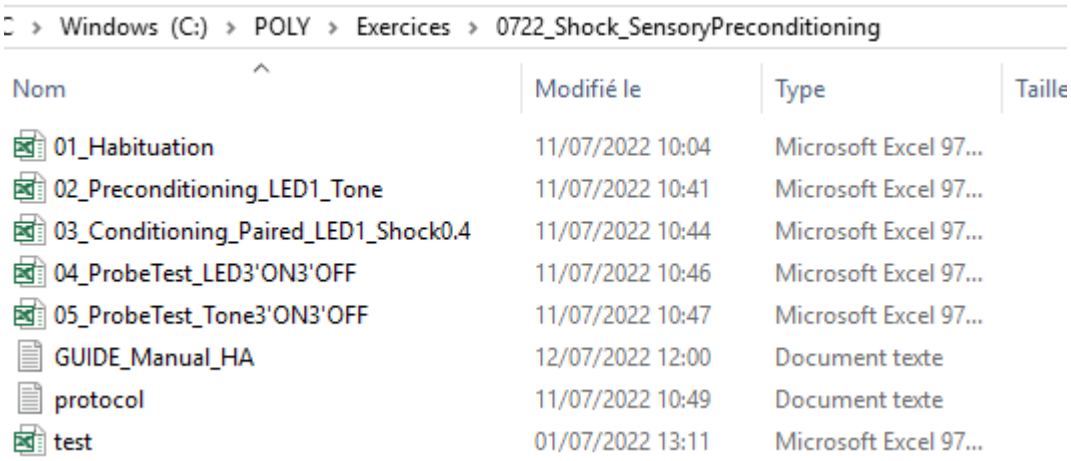
Polymodal Cages

Configure Experiment

Now let's run a test; into one post



1) Press Exercise >>Ouvrir: **SELECT THE EXERCISE YOU'RE DOING**



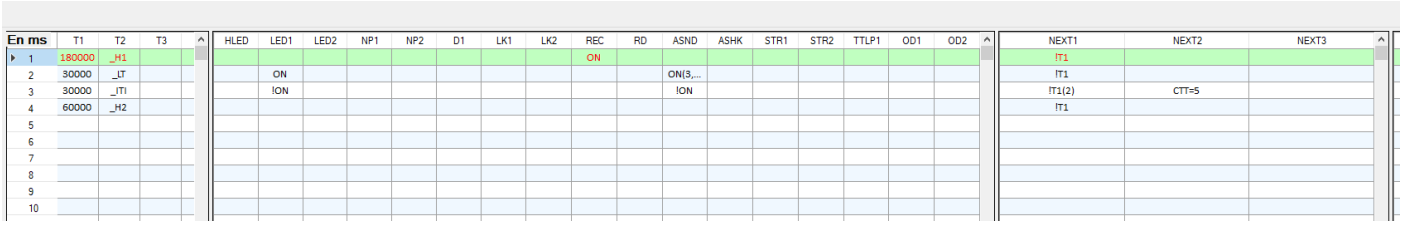
- e.g: 02_Preconditioning_LED1_Tone.xls Now a tone is to be coupled to a light for [add protocol details]10 of the seconds; in this exercise it is repeated for 6 sessions.
- In C:/POLY>IMETRONIC/ Test_tout.xls This is to test all the components of the cages (Nose Poke NP, Distiller D, Shock, Sound, LED/HLED)

* Refer to the manual [Polymodal user guide_marsicano2022] for further details

Sensory Preconditioning experiments

Polymodal Cages

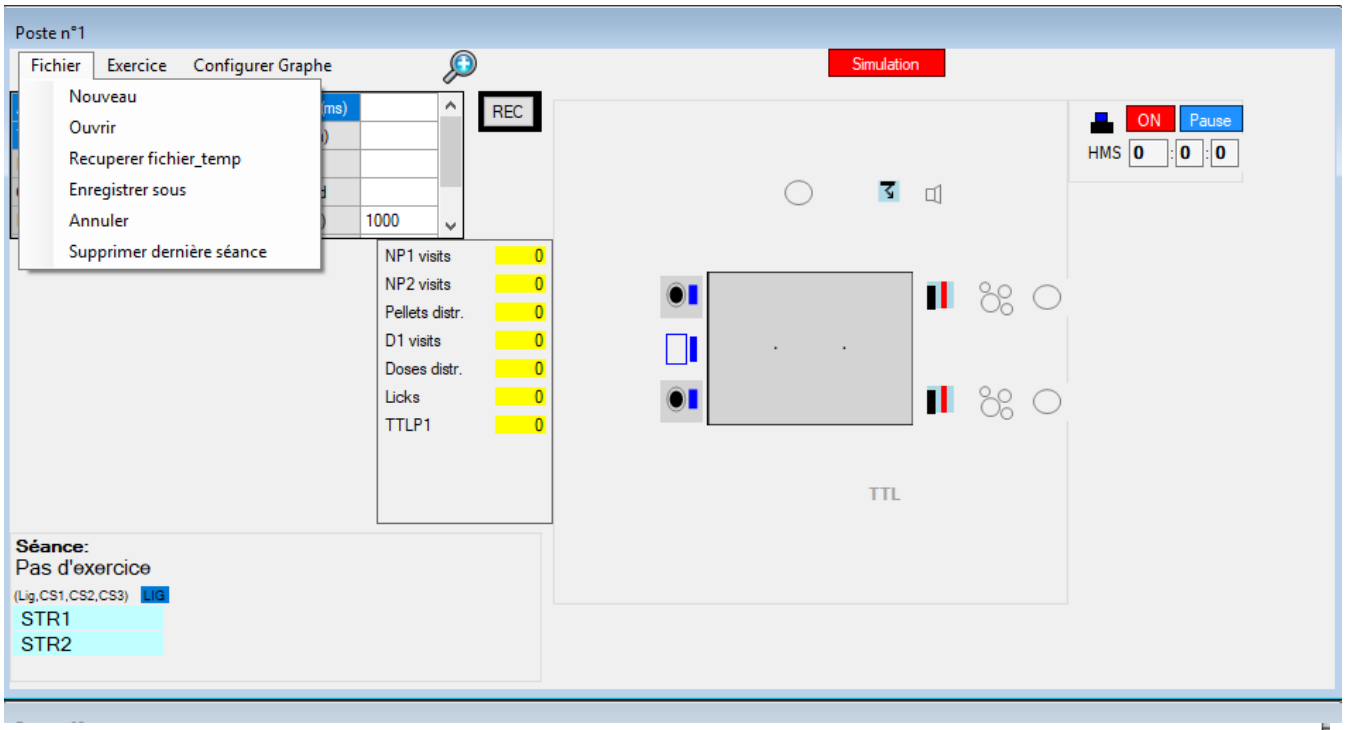
- CONFIRM EXERCISE IS WELL WRITTEN; and loaded.

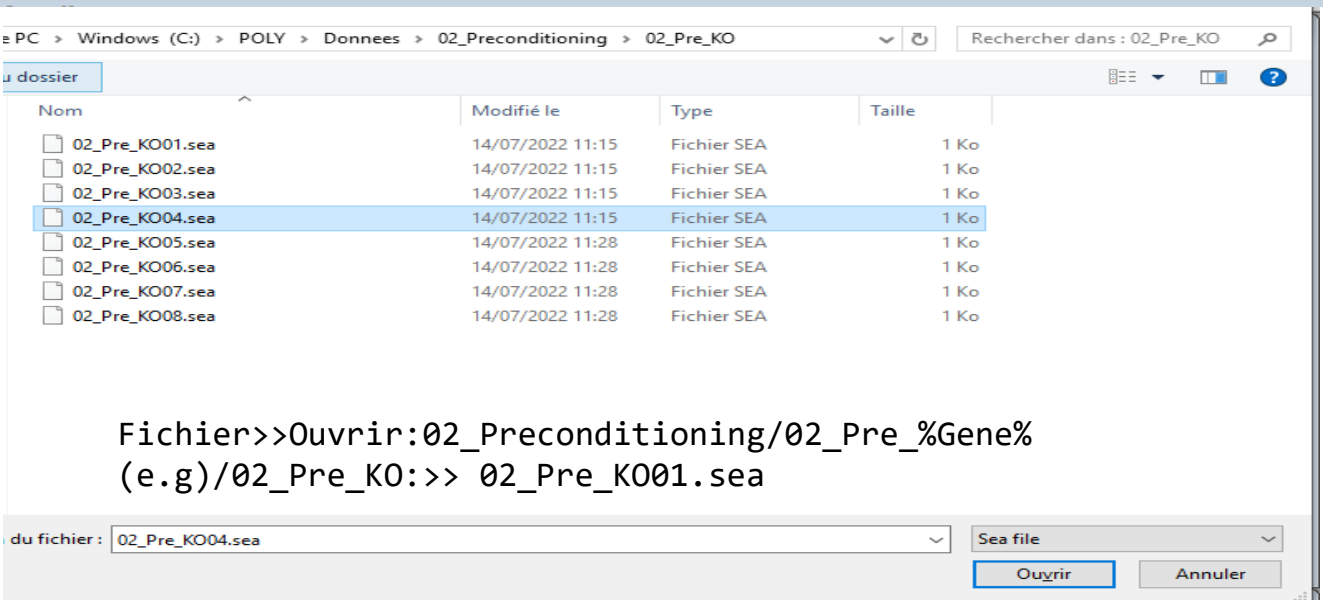


En ms	T1	T2	T3	HLED	LED1	LED2	NP1	NP2	D1	LK1	LK2	REC	RD	ASND	ASHK	STR1	STR2	TTLP1	OD1	OD2	NEXT1	NEXT2	NEXT3
1	180000	_H1										ON									IT1		
2	30000	_LT			ON									ON(3,...							IT1		
3	30000	_ITI			ION									ION							IT1(2)	CTT=5	
4	60000	_H2																			IT1		
5																							
6																							
7																							
8																							
9																							
10																							

2) **Next Step is to configure the animal sessions.**
Each session can be loaded; You have to individually load in each box the correct ones: e.g: **Poste 01**:

Fichier>> **Nouveau** [if for the first time]; **Ouvrir** [If repeating a session]



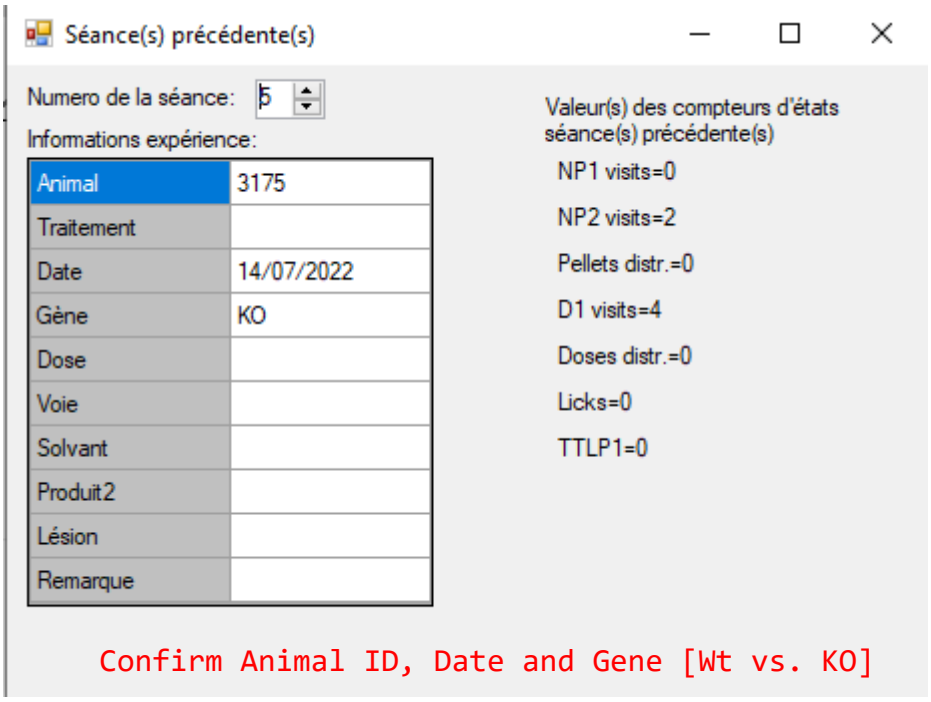


`Fichier>>Ouvrir:02_Preconditioning/02_Pre_%Gene%`
`(e.g)/02_Pre_KO:>> 02_Pre_KO01.sea`

Sensory Preconditioning experiments

Polymodal Cages

3) <u>a box will come up: it says {Séances précédentes...}</u>

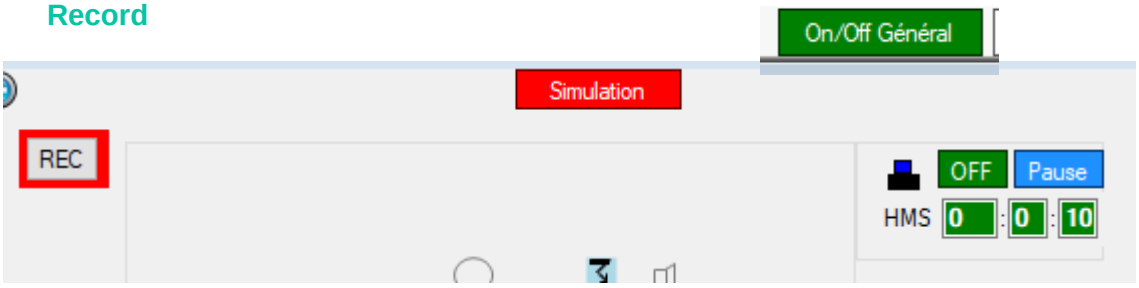


Confirm Animal ID, Date and Gene [Wt vs. KO]

Repeat iPoste:nPostes

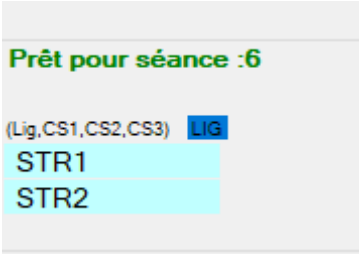
Etiquette: Modify Date and confirm gene.

Record



NOW ALL your configuration is ready; you confirm all is well written

And confirm your timing.. SET ON/OFF General and start recording

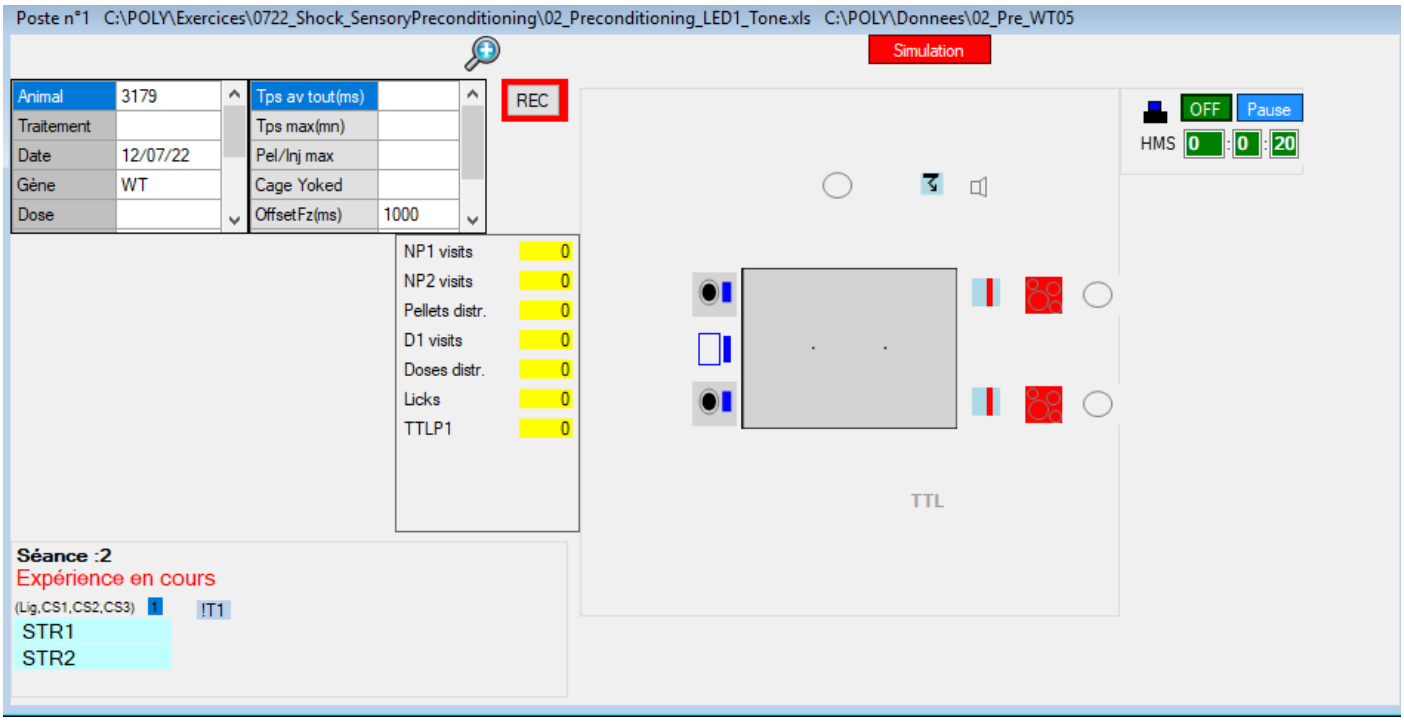


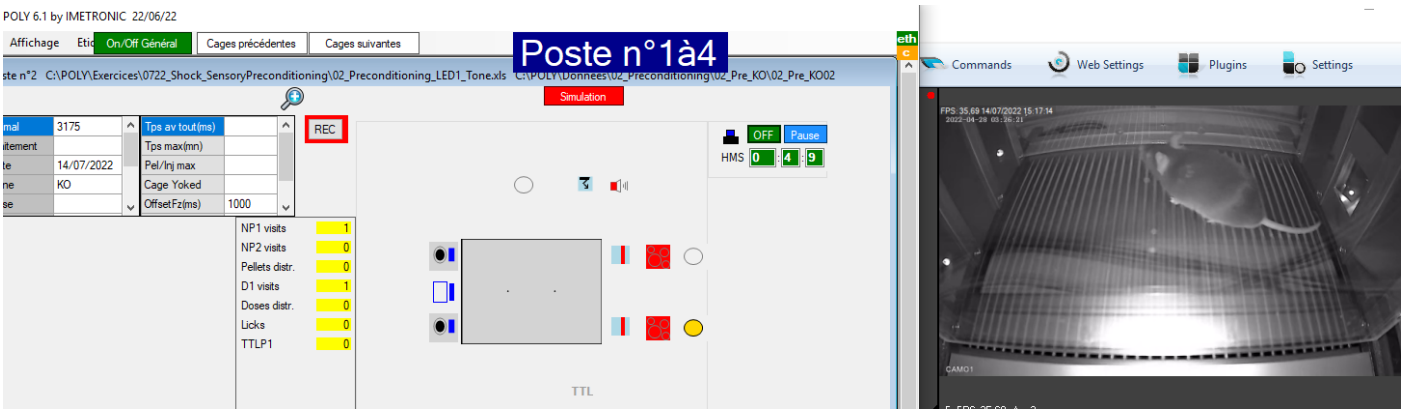
Sensory Preconditioning experiments

Polymodal Cages

To confirm the experience is recording and saving;

1) Pret pour experience changes into : Experience en cours
2) The video starts recording ; don't try to touch it; just observe, and don't press REC from the software; it is already encoded in the exercise



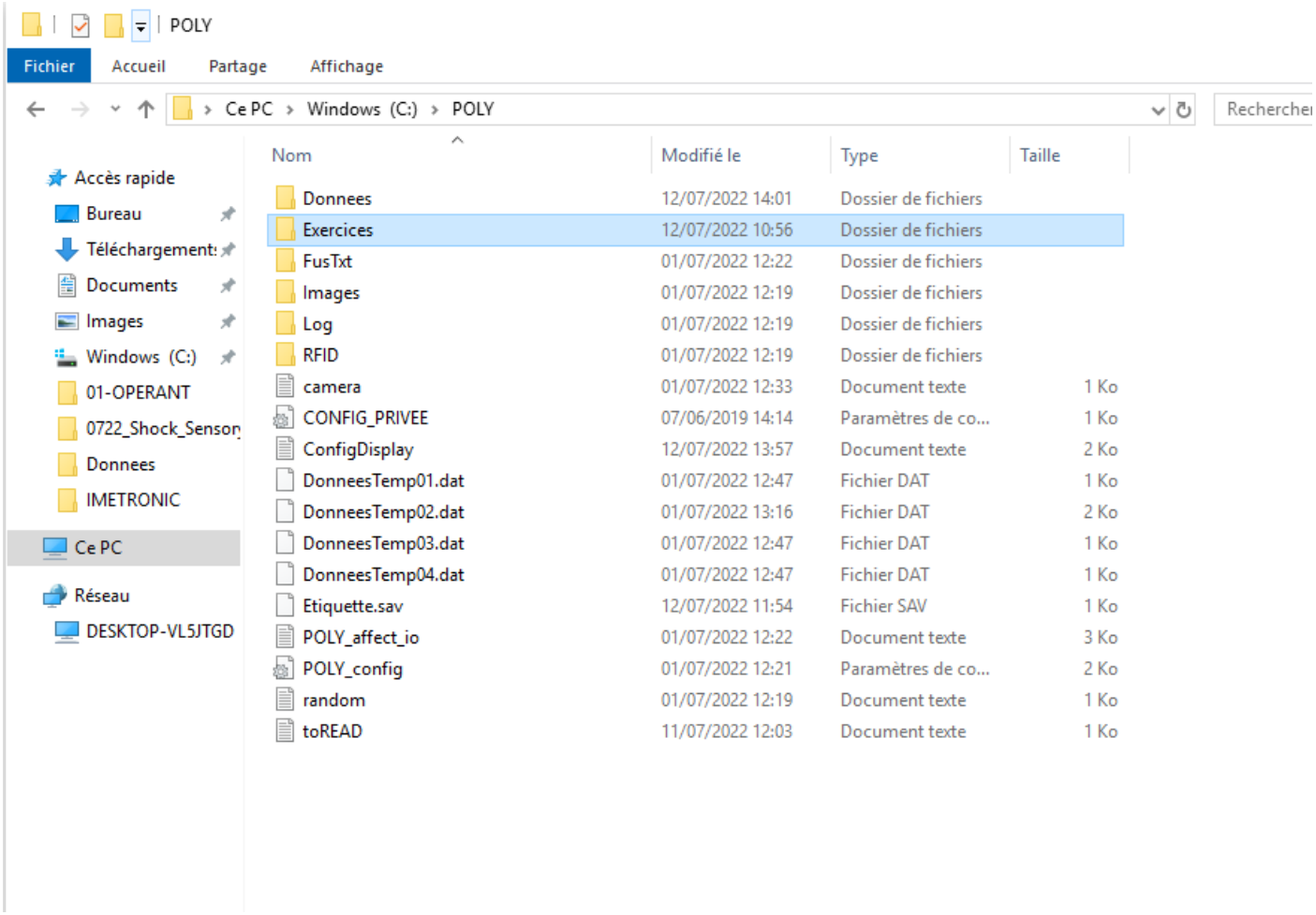


Sensory Preconditioning experiments

Polymodal Cages

Sensory Preconditioning experiments

Polymodal Cages



Analyze

Now let’s analyze our data

Sensory Preconditioning experiments

Polymodal Cages

ANNEX 1

- Weigh the mice before test. As recorded in the sheet
- Bring one group of animal to the behavior paradigm. Set up the system/computer while mice habituate to the room.
-

- *N.B: Make sure that there*
-

2 training sessions separated 1h
The shock is an aggressive manipulation;
so better make it as easy for an animal as possible
Pay attention to whatever you introduce to that grid; as mice can get distracted as humans; quiet easily; if such a vivid memory creation experience is undergone.
As yesterday you've completed youre sixth session of the exercise; all is supposed to be well...
You will enter the grid; there are no remains of food, pee, stool or bedding of another place: {meaning cleaning well; and making sure what is there; resembles what was at house>> yet the context is different}
Mice leave out a lot of traces, better watch out for cleaning
Then;
PROTOCOL:
0- 3 min [180000ms] : H1 {Baseline}
1- 8 secs [8000ms] : HLED(ON) {Light}
1- 2 secs [2000ms] : ASHCK(ON(i0.4)) {Shock: [ON;iON],[if @ON = ON(iX); i=intensity; X="float"]
2- 1 min [60000ms] : ITI_1 [HLED(!ON),ASHCK(!ON) {ITI_"n"} {CTT=idxn}
$$$$ __++LSx... TTL Iteration:LSx --> ITI_x-1 $$$$
3- 1 min [60000ms] : H2 {End}
1,2 Iteration: "args": n[ITI]; n [HLED:ASHCK]
notes@THE DAY@
SHOCK seems to be quiet remarkable for mice, i notice that the indicator LED is not lid; however one can clearly hear an animal sqeuak following a 2s shock; it seems we're printing bad memories association for the light
==========
Tomorrow is here:
2 Probe tests (one with light and the other with tone) each session 3 min off and then 3 min On, separated at least 1h (both in the morning).
.
Probe Test 1: Fear: 3 min off and then 3 min On: LED
PROTOCOL:
0- 3 min [180000ms] : T1= H1; T2=_OFF {Baseline}
1- 3 min [180000ms] : T1= HLED(ON); T2=_OFF {Light}
$$$$ __++LSx... TTL Iteration:LSx --> ITI_x-1 $$$$
3- 1 min [60000ms] : H2 {End}
1,2 Iteration: "args": n[ITI]; n [HLED:ASHCK]
then;
Probe Test 2: Fear: 3 min off and then 3 min On: LED
PROTOCOL:
0- 3 min [180000ms] : T1= H1; T2=_OFF {Baseline}
1- 3 min [180000ms] : T1= ASND(ON); T2=_ON {Light}
ON(3,3000)
!ON
$$$$ __++LSx... TTL Iteration:LSx --> ITI_x-1 $$$$
3- 1 min [60000ms] : H2 {End}
1,2 Iteration: "args": n[ITI]; n [HLED:ASHCK]

- *is no laser coming through the "sleeve". If there is laser leaking, then you need to attachthe cable again (i.e., there is a misconnection). You may see laser on top of the skull, that is fine.*

Sensory Preconditioning experiments

Polymodal Cages