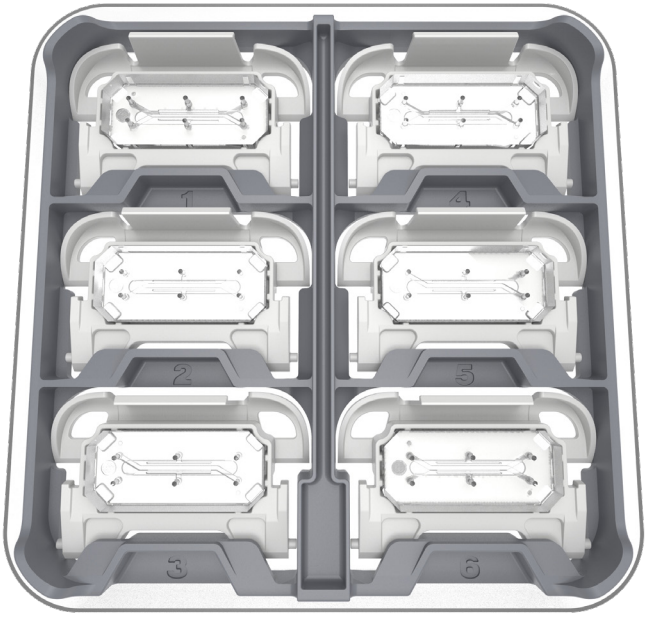
emulate



Chip Cradle Protocol

Supplement to Emulate's Organ-Chip Culture Protocols

November 2019

EP207 v1.0

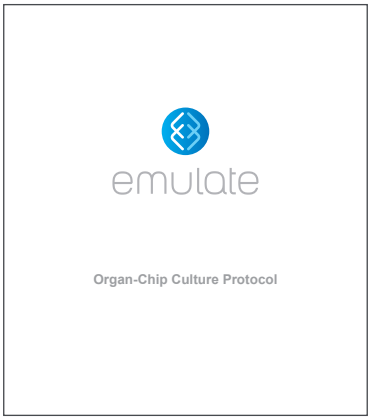
This is a supplemental protocol which outlines the use of the Chip Cradle. It is not intended to replace current Organ-Chip protocols, but to demonstrate how the new cradle integrates into existing Organ-Chip protocols.

This user guide contains important information to safely and effectively use the Chip Cradle. All users should thoroughly read and understand this guide before use.

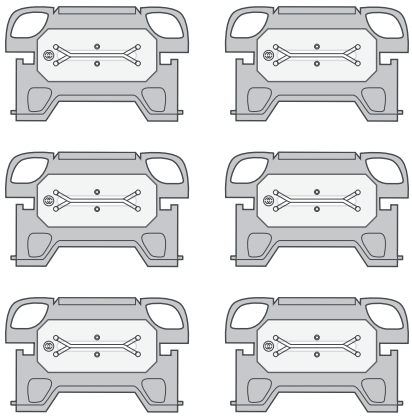
This product is for research use only.

Table of Contents

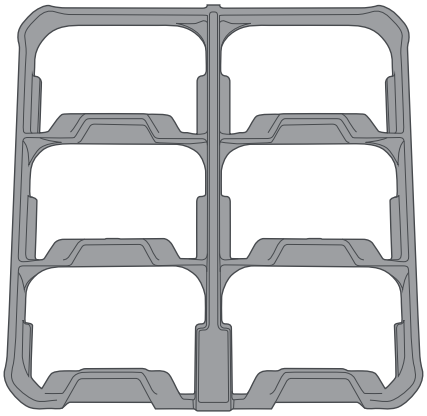
Materials Needed



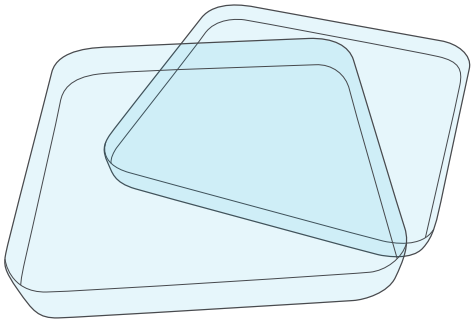
Emulate Organ-Chip Protocol



6 Chips + Carriers



1 Chip Cradle



1 Square Cell Culture Dish (120 x 120 mm)

Setup & Activation

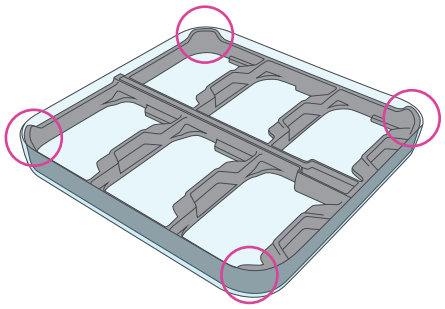
Prepare Materials and Assemble

- Gather all materials needed for your experiment. For every 6 chips in your experiment you will need (1) Cradle and (1) 120 x 120 mm square cell culture dish.
- The Chip Cradle comes sterilized, and should be sterilized before each subsequent use. Sterilization instructions can be found on page 9 of the protocol.

1

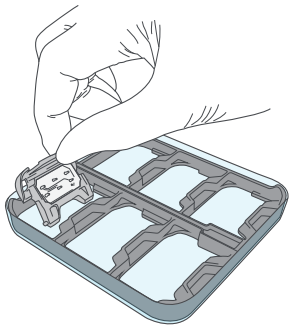
Per Emulate protocol remove from packaging:
6 Chips + Carriers, 1 Chip Cradle, and 1 Cell Culture Dish.
Bring all needed items to Bio Safety Cabinet for assembly.

2



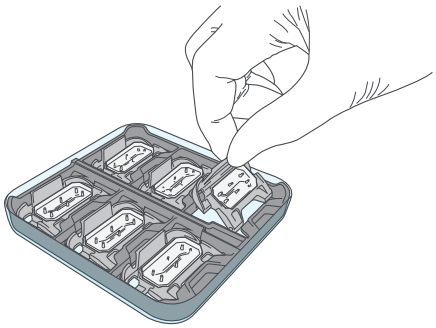
Begin assembly by placing the Chip Cradle into the square dish making sure the Chip Cradle is oriented properly with the corners facing up.

3

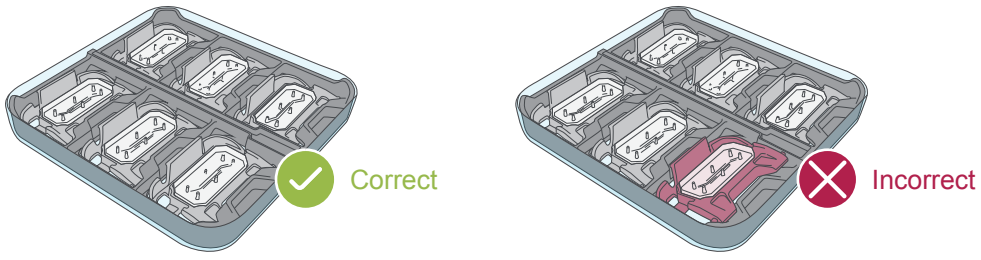


Place the first chip into the cradle by sliding the back of the carrier under the tabs.

4



Repeat as necessary for all of the chips included in the experiment.



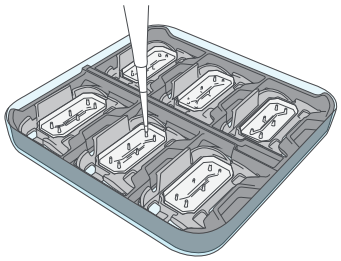
Ensure all chips are placed properly before moving to the activation step of the protocol.

Setup & Activation

Activate Chips

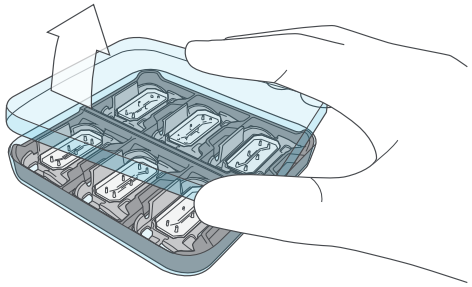
- Prepare ER-1 and add solution to both channels in all chips per Organ-Chip protocol.

1



Using a pipette place E-1 solution into both channels in all chips in the experiment. Place cover onto dish and bring to the UV lamp for activation.

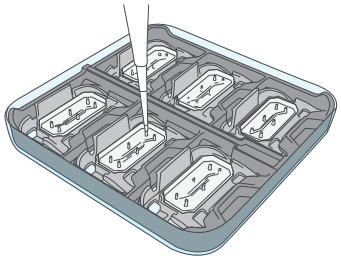
2



Bring all dishes to the UV lamp. Before placing dishes into the UV lamp, make sure to remove the cover. Place each dish into the UV lamp and activate per protocol.

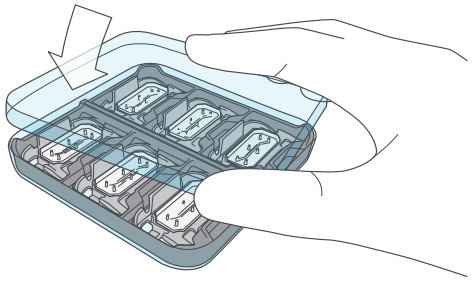
ECM Coating

1



After washing chips, fill both channels in every chip with ECM per Organ-Chip protocol.

2



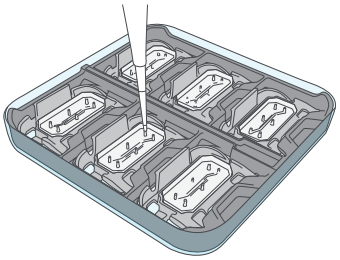
Place cover onto cell culture dish and transfer all chips to incubator and incubate for 2 hours or overnight.

Seeding Top Channel

Prepare Chips

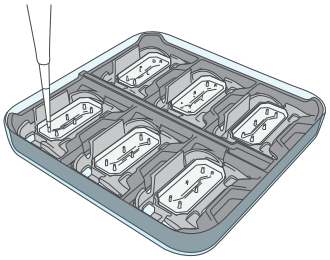
- The Organ-Chip protocol should be followed to determine if bottom channel or top channel cells need to be seeded first. If your protocol indicates bottom channel seeding needs to be done first, go to the Seeding Bottom Channel section of the protocol.

1



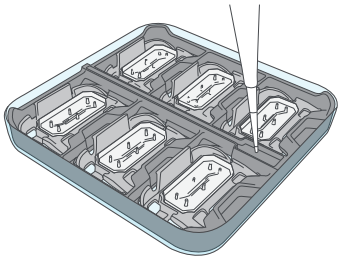
Using a pipette, wash the top and bottom channels of all chips in the experiment and prepare cell suspension based on Organ-Chip protocol.

2



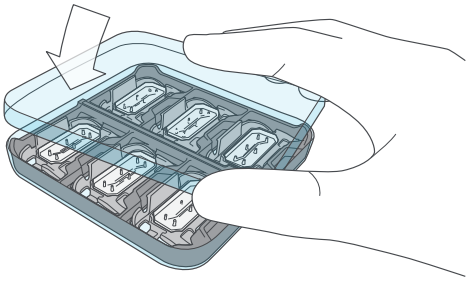
Seed the top channel of one of the chips in the experiment and confirm seeding density under microscopy. If density is correct, seed remaining chips in each cradle.

3



To prevent evaporation during incubation, fill central reservoir with 1 mL of PBS.

4

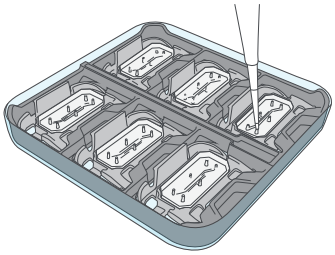


Place cover onto dish and transfer to the incubator. Incubate for the time indicated in Organ-Chip protocol.

Seeding Bottom Channel

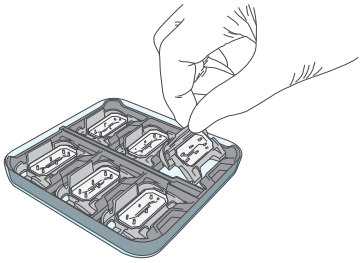
Prepare Chips

1



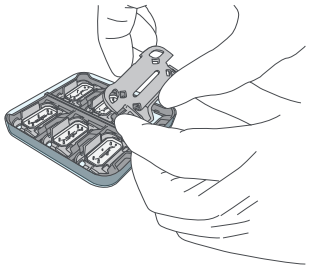
Prepare chips and cell solution based on Organ-Chip protocol. Seed the bottom channel of one of the chips in the experiment and confirm seeding density under microscopy.

2



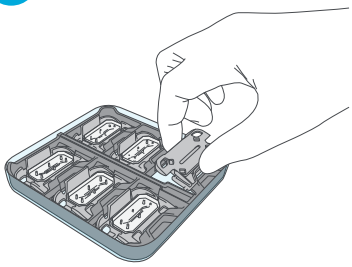
If density is correct, invert the seeded chip while avoiding touching the chip itself. First, remove it from the Chip Cradle by grabbing the front tab of the chip carrier.

3

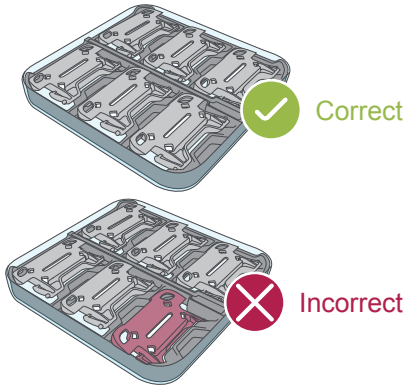


Still holding the tab with your dominant hand, use a second hand to grab the sides of the chip carrier. Invert the chip + carrier using your second hand, then grab the chip with your dominant hand as shown.

4

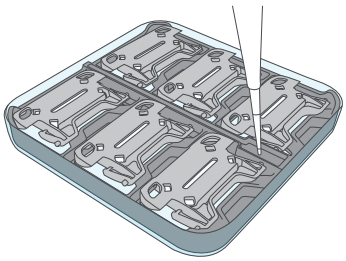


Place the carrier into the cradle as shown. Seed and invert the remaining for the remaining chips in the experiment.



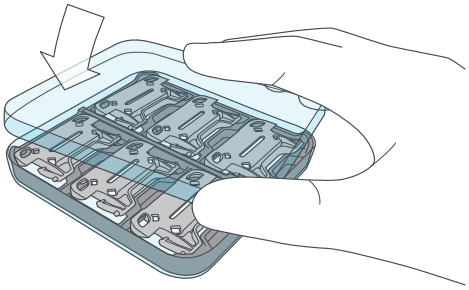
After placement, make sure all chips are level in the cradle.

5



To prevent evaporation during incubation, fill central reservoir with 1 mL of PBS.

6

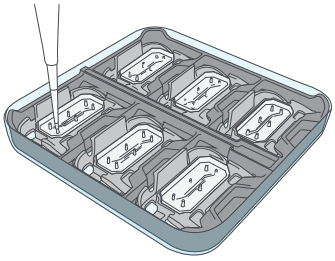


Place cover onto cell culture dish and transfer all chips to incubator. Incubate for time indicated in Organ-Chip protocol.

Seeding Bottom Channel (Alternate Method)

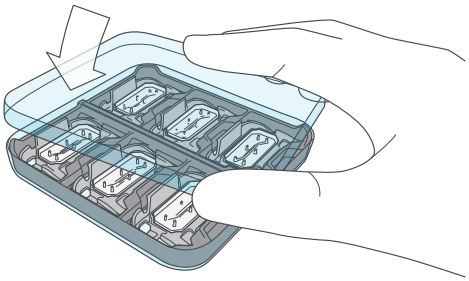
Prepare Chips

1



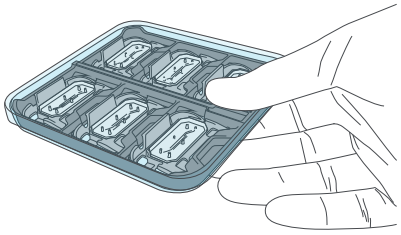
Prepare chips and cell solution based on Organ-Chip protocol. Seed the bottom channel of one of the chips in the experiment and confirm seeding density under microscopy.

2



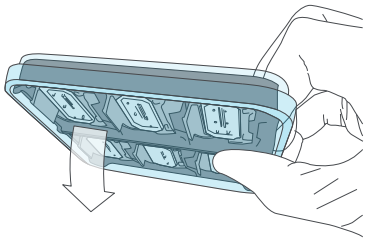
If density is correct, seed remaining chips and replace cell culture dish cover.

3



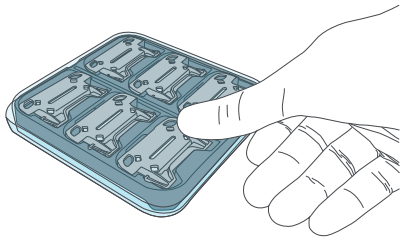
To invert chips begin by grabbing both the top and bottom of the square dish and picking it up.

4



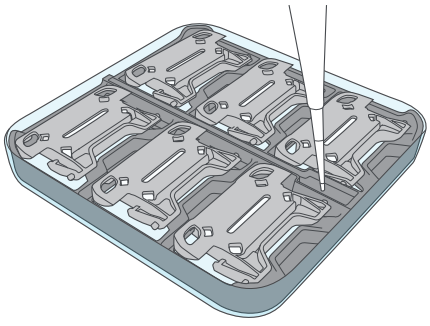
Still holding the dish firmly, gently turn the assembly until it is fully inverted.

5



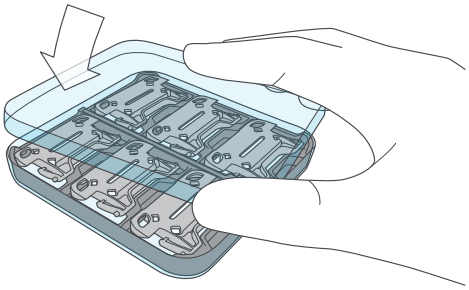
Place the inverted assembly back onto the bench gently.

6



Fill central reservoir with 1 mL of PBS.

7



Place cover onto cell culture dish and transfer all chips to incubator. Incubate for time indicated in Organ-Chip protocol.

Cleaning

Square Dishes

Square dishes are standard single-use dishes and must be disposed of after use.

Ordering Information:

Petri dish, square, ps, clear, 120/120/17 mm, sterile, 10st./BTL
WVR Catalog Number: 82051-068
Item Number: 688161

Chip Cradle

Take Chip Cradle and put into sterilization bag. If pre-washing is desired, cradles are dishwasher safe.

Autoclave per the following parameters:

Sterilization Temp: 121ºC (250ºF). Do not exceed: 134ºC (273ºF).

Sterilization Time: 20 minutes

Drying Time: 30 minutes

Sterilization bag: 7.5 x 13"

VWR Catalog No. 89140-802