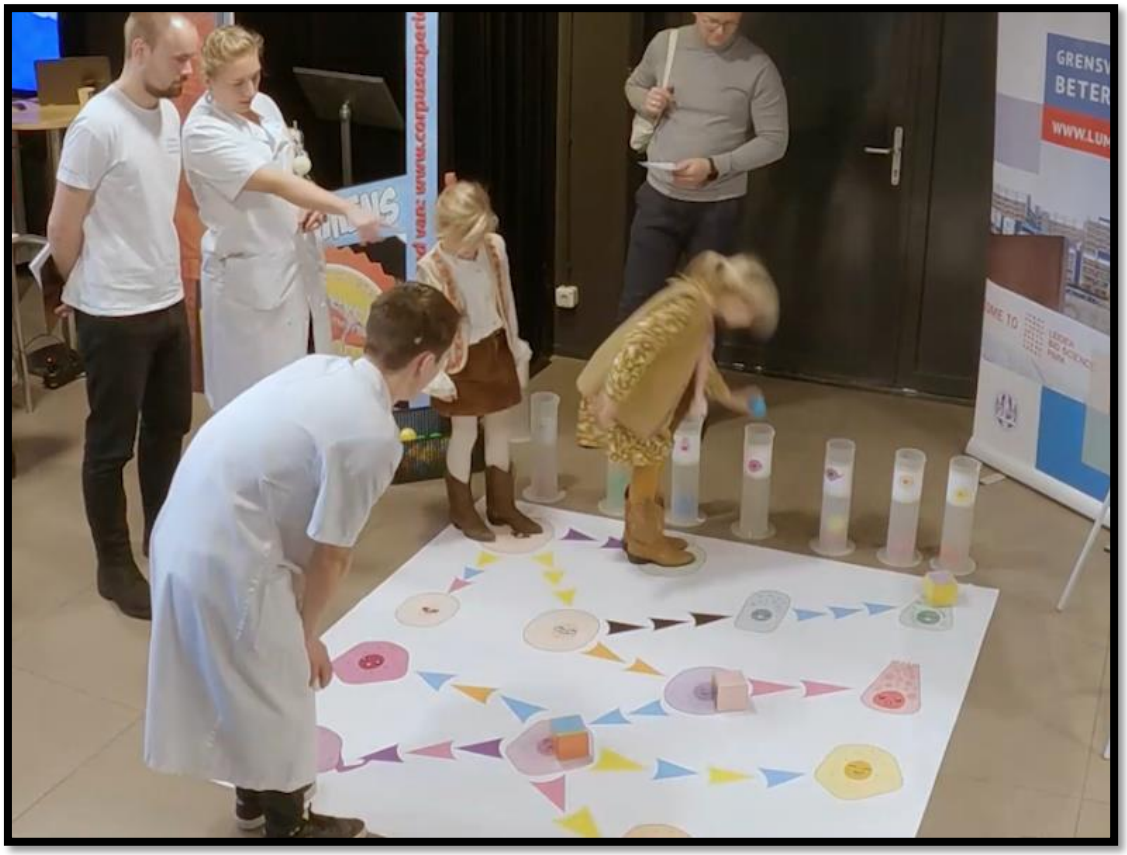
Let’s make beta cells!



Activity	A game for festivals, schools and events
Age Group	3 - 80 year-olds
Number of Players	1-10
Overview	A flexible interactive floor game that challenges players to race to make beta or islet cells in 5 mins

ISLET

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 874839 ISLET

How to play	**Aim of the game - for the team to make as many beta or islet cells in 5 minutes** 1. Run through the game to show how to play 2. Start the timer as player 1 picks up a ping pong ball (stem cell) and stands on the stem cell. 3. Player 1 throws the 3 dice. 4. Player 1 moves to the cell according to the colours on the dice. For example, if they throw orange, black and yellow they follow the yellow arrows to the progenitor cell as they don't have purple or all 3 colours yellow, blue and purple. This is one move. 5. Player 2 gets a ping pong ball, stands on the stem cell and throws the dice. 6. Player 2 and 1 move to a new cell according to the colours. 7. Player 3 then starts, throws the dice and player 1, 2 and 3 move according to the dice colours thrown. Play then continues like this for the 5 minutes. 8. A player leaves the mat once they get to an end cell (where no more moves are possible). Different end cells are possible: Stem cell – the stem cell self-renews (makes a copy of itself) if a yellow, blue and purple is thrown on the dice. This is extra special as the player can get an extra ball and start again. From the stem cell they might also get purple – this leads to the hepatic endoderm which they don't want. If they they land on the hepatic endoderm cell they leave the mat and wait their turn. A yellow leads to the pancreatic endoderm and they then play until they become a specialised cell. They then place their ball in the correct cell-labelled container when they finish. 9. After 5 minutes the balls are counted and either the score for beta cells alone or islet cells is placed on the score board (depending on the target you choose.

Health and Safety	• The mat should be placed on a non-slip surface or grippy mat placed underneath to prevent slips • Players should be mindful of others when playing to avoid accidents from contact or trips • Clean shoes should be worn to prevent sliding if in just socks or slips if shoes are muddy

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✓	Equipment
	Print of the floor game – 'birth of beta cells' (see attached file 'floor game mat') Print details - Description: Playmats Size: 180 x 180cm Material: Premium coated B1 fire rated 500gsm banner PVC Digitally CMYK one side Finishing: Cut to size
	Approximately 50 ping pong balls in a container (plastic bowl or tub)
	3 x Foam pocket dice. Each dice has 2 colours which match the mat colours. These can be made using coloured paper or card: Dice 1 - yellow and purple / Dice 2 - blue and orange / Dice 3 - Pink and black
	7 containers for cells collected during the game (or number you decide)
	A4 or A5 prints of the cells and cell names to label the containers (see attached file 'Cell Images')
	A score board and pen (for example, flip chart / white board)
	Timer

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Science Messages

A good conversation starter – do you know anyone with diabetes? Do you know what diabetes is? It is when the beta cells in the body are damaged or lost and this can make people ill. To help people with diabetes we are learning how to make beta cells to replace the damaged ones.

- Beta cells make insulin and are the cells that are lost or damaged in people with diabetes.
- Beta cells, like all the cells in the pancreas are made in the body from starter cells called progenitor cells.
- In the developing body, it is the stem cells that make all the cells of the pancreas.
- Stem cells are the only cells that can make copies of themselves and all the other cells in the body.
- Understanding how stem cells make beta cells has helped scientists work out how to create beta cells in the lab. Beta cells made in the lab offers a potential therapy for those with Diabetes, especially those for whom islet transplant is the only option.
- Beta cells don't work on their own in the body, but in clusters called islets. By working out the best combination and type of cells for transplant, the better the cell-therapy can be.
- Project ISLET is focused on making the best possible cells and cell clusters for cell therapy for those with diabetes, ready for use in clinical trials.

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Game mat showing cell names – included in the folder is a separate printable game mat image file (without cell names) plus printable image file of each cell.