

Case Study: Stem Cell Beer

Having a reason to be part of a community; brewing a taste for stem cells.

At a glance

Strategic Public Engagement Aim	Aim 2: To connect to local under-served communities and empower them to access stem cell research
Date	Jan 2017 - present
Audience	Under-served adult communities (18+)
Reach	870 face-to-face interactions 500 flyers distributed 9,000 pints of beer sold
Locations	Cambridge Beer Festival: Jesus Green, Cambridge Regenerator on Tour: <ul style="list-style-type: none">• Cambridge pubs: Cambridge Blue, Blue Moon, Maypole• White Swan, Stow cum Quy Ely Beer Festival: The Maltings, Ely Brewing a Taste for Stem Cells: Cambridge Sports and Social Club
Project lead	Tim Lohoff and Daniel Bode, PhD students
Researcher participation	15
Collaborators	Mark Watch and Simon Reeves, Moonshine Brewery, Cambridge
Cost	£2,412.55

Project Aims

- To engage local under-served communities with stem cell research.
- To work in partnership to make our science accessible and interesting to a new audience.
- To trial engagement in unusual locations.
- To design a 'tool' to facilitate conversations.

Summary

Regenerator is a 4.2% session ale developed by PhD students, Tim Lohoff and Daniel Bode, as part of a public engagement seed fund project in collaboration with local brewery, [Moonshine](#).

Having realised the limitations of traditional events, such as science festivals and open days in attracting a more diverse audience, Tim and Dan sought an alternative, more creative way to take their research directly out to people – over a beer.

Phase 1: Development

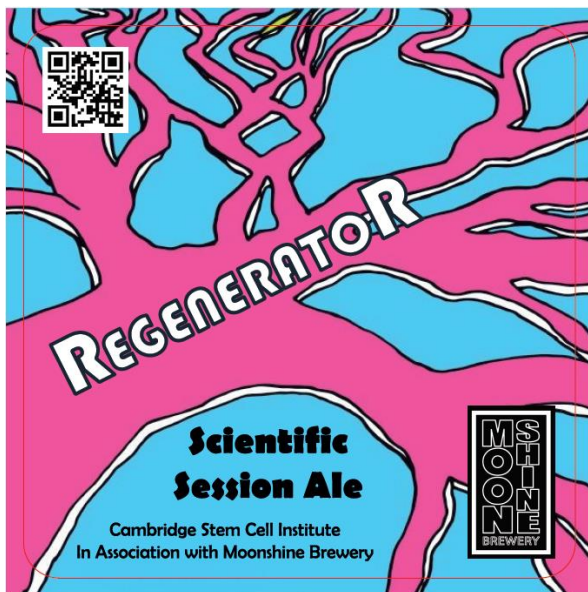
The group explored the common ground between lab science and beer making, through a series of brewery visits to Moonshine. These initial exchanges were rich 'primary' engagement, allowing both parties to build a deeper appreciation for each other's field in developing the beer. The name 'Regenerator' was chosen to signal the 'potential' of stem cells in regenerative medicine, whilst providing a catchy hook for drinkers. A series of visually engaging bottle labels were designed, complete with stem cell facts and a QR code to a webpage with stem cell films, podcasts and upcoming events.

Phase 2: Cambridge Beer Festival

Regenerator was officially launched at Cambridge Beer Festival in May 2017 with a signature banner displayed on the Moonshine bar and flyers and beer mats distributed throughout the festival. To experiment with the beer as a tool to start a conversation about stem cells, a group of 5 researchers attended one day of the festival. As well as a marquee 'hub' with interactive science activities the group 'busked' around the festival patrons, giving free pipette tasters of Regenerator. These informal conversations proved very successful, and allowed researchers to integrate amongst the diverse crowd, rather than relying on a small self-selecting set of drinkers to come to the marquee. It ensured researchers led with a relatable conversation, about the beer, their lives, and ultimately their research.

Phase 3: Regenerator on Tour

Building from the learnings from the launch we decided to experiment with taking Regenerator 'on tour' across regional pubs in Autumn 2017. Pubs were specifically targeted to avoid usual student hotspots or researcher hangouts, with Moonshine helping us access communities and venues that would not usually host science events. We wanted to reach a local audience, who enjoy beer, but have varying level of science capital e.g. interest and access to science and research. The 'tour' had four destinations with a series of themed events accompanying the beer as the guest ale on tap. We produced a beer mat to promote the full event series, and signpost our engagement tools (below). Researchers took a leading role in developing and delivering the programme, including venue selection and event format, as well as design of a stem cell pub quiz round, and comedy performances.



Regenerator on Tour – Beer Matt Design

Events at Cambridge Blue were part of their 10th Anniversary Beer Festival

Phase 4: Beer Festivals and Events

To maintain the momentum, and capitalise on the success of our growing collaboration with Moonshine we pushed our engagement further afield. In Spring 2018 our researchers took Regenerator to Ely Beer Festival, 15 miles from Cambridge, working the bar alongside Moonshine

staff and using beer mats and hand-held demos to entice drinkers into a conversation about stem cell therapies and life in the lab. Conversations deepened, and often included personal reflections and lived experience, with a more under-served demographic compared to Cambridge Beer Festival.

To celebrate our collaboration with the brewery, and empower our partners to join us in sharing their knowledge, we co-created an event for Cambridge Science Festival. Using the Festival as an umbrella to experiment within, our event 'Brewing a Taste for Stem Cells' explored the synergies between brewing and lab science. Brewer Simon and researchers Tim and Dan, provided a short introduction to the Regenerator project and its origins, before sharing the technicalities of their areas, including the common ground they had uncovered through the project. The format, affiliations, and location (Cambridge Sports and Social Club) allowed us to bring in a 'CAMRA' crowd, with the lengthy Q&A allowed lots of opportunity for discussion and debate. We were pleased to provide a route for new communities to access the Festival.

Since 2018, the beer has continued to travel independently accompanied by flyers and beer mats, to 9 beer festivals, 7 breweries, and 17 pubs, clubs and cafes. It has had a presence at numerous external and internal events, and is on sold in three shops in the Cambridge areas.

Who did we reach?

The 'Regenerator on Tour' series was publicised on the Institute's and Brewery's social media channels and received press coverage in local and district newspapers. Overall, 49% of the 230 participants had not heard of the Institute before, whilst 33% had never been to a 'science-themed' event. Unsurprisingly, given the venues, most of the participants were residents of central Cambridge (CB1 - CB5 postcode) although the Skeptics event attracted people from as far as York, Birmingham, Peterborough, Oxford and Hertfordshire. The only regional stop in Stow Cum Quy attracted 53% participants from rural communities (outside CB1-CB5).

In contrast, Brewing a Taste for Stem Cells, despite a city centre venue, managed to attract 47% people from beyond central Cambridge (CB1 – CB5), including Peterborough, Ipswich and Stevenage. The demographic was equally distributed in age from 26 – 35 to over 65, with 47% reporting little knowledge of stem cells ahead of the event, with 60% never having heard of the Stem Cell Institute.

Both Cambridge Beer Festival and Ely Beer Festival attracted hundreds of people from the local region, although full demographic data was harder to achieve due to the nature of our contribution to these events. Please see 'Outcomes for researchers' for anecdotes of exchanges and demographics.

At wider level, the ongoing beer sales have raised awareness of stem cell research through the branding, bottle facts and website.

Outcomes

For the public:

Due to the informal nature of the interactions, we did not capture formal feedback from audiences at **Cambridge or Ely Beer Festival**. However, extensive reflections from the researchers on the conversations can be found further down. In summary;

- Festival goers remarked on how 'reassuring it was to hear from dedicated young scientists' and what 'an amazing comfort it was to know that so many efforts are being made'.

- A frequent topic of conversation was about ‘family members who had suffered different health struggles’ who wanted to know if the Institute was exploring research in these areas.
- At Cambridge Science Festival, one member of the public was so impressed by the conversations they had with a young researcher that they donated £20 to stem cell research.

Feedback for **Regenerator on Tour** showed the ten most common words attendees used to describe stem cells as ‘Regeneration’ ‘Pluripotent’, ‘Research’, ‘Differentiation’, ‘Science’, ‘Future’, ‘Cancer’, ‘Medicine’, ‘Potential’ and ‘Embryo’.

Attendees of **Brewing a Taste for Stem Cells** reported learning

- *‘That stem cells can be reverse-engineered from specialised cells’*
- *‘Their use in treating disease and role in the body’*
- *‘What causes cells to differentiate’*
- *‘That research has/is ongoing and positive’*
- *‘The kinds of questions researchers are asking’*

...and wanting to know more about

- *‘Foetal development.... How does an embryo develop?’*
- *‘How far the research is going to help in Parkinson’s’*
- *‘Potential therapy candidates. If you are treating a cancer/leukaemia patient with their own stem cells, how can you be sure they won’t carry the same unbalanced regeneration?’*
- *‘How to induce pluripotent stem cells’*
- *‘Possibilities for future stem cell research’*

For the brewery and pubs:

- Despite the project starting as a one-off brew for Cambridge Beer Festival, it has become one of Moonshine’s signature ales.
- Over 9,000 pints have been drunk across pubs and festivals nationwide
- The online popular beer rating site *untapped*, gave Regenerator 3.38/5 with over 138 ratings.
- The beer has been featured in articles in CAMRA magazine and local papers
- Several people have requested Regenerator beer mats for their collections.
- Moonshine were approached to give a talk in a local school on the science of brewing.
- Several host pubs hosted science themed events for the first time as part of Regenerator on Tour (Cambridge Blue, White Swan).

Moonshine Brewer, Ely Beer Festival, 2018: *We had a great couple of days - I wanted to say a big thanks to you and all the Stem Cell people who helped out. It was hugely successful, and CSCI help added a lot to our enjoyment of the event.*

Moonshine Brewer, Brewing a taste for stem cells 2018: *‘Two of the audience members were sixth form teachers locally and approached me afterwards to ask if I could give a similar talk to their students. The slides I wrote about the enzyme activity during mashing were apparently directly relevant to their curriculum. I plan to do this within the next few months.’*

Ben Ackers, Cambridge Blue, Regenerator on Tour, 2017: *‘We are very pleased to be working with the Cambridge Stem Cell Institute to support their public outreach efforts, and what better way than*

developing a beer and going out to the pubs to chat with locals about the amazing stem cell science that is going on in the City.'

For researchers:

- 3 PostDocs, 10 PhD students and 2 PIs took part across the full programme.
- Researchers were motivated to find new ways to engage with a different audience and fully endorsed the beer as a way to start a conversation.
- Participants benefited from the challenge of framing stem cell research in the context 'real world' questions, particularly when confronted with personal anecdotes of disease.
- Researcher valued the conversations they had with the public, and found the exchange of knowledge rewarding.

Staff member, Cambridge Beer Festival, 2017: *'It was really interesting to go to a completely different audience that weren't primed for science like at the science festivals. The team did some amazing thinking on their feet to adapt our activities to get conversations started.'*

Researcher, Cambridge Beer Festival, 2017: *'I certainly felt a lot more comfortable with talking to people with an opener like the beer, that was a major asset...Overall, it was a really enjoyable experience and I feel like we had a lot of great conversations with people who ever really keen to hear about science. I spoke with two women who were both very interested in the links between SCI research and cancer as they had both suffered from breast cancer and they were incredibly keen to check out the website and see more.'*

Researcher, Cambridge Beer Festival, 2017: *'At the beginning I was quite challenging to find the way to approach people and talk to them about what we do. The beer helped a lot to break the ice, I think the idea of using the Pasteur pipets was also very efficient to start a conversation. People would laugh about it, or would be more open to hear about what we do by seeing something we use at lab.'*

Researcher, Ely Beer Festival, 2018: *'Whenever I asked if they knew anything about stem cells, or if they'd heard about them before, the most common answer was "No, I don't have a scientific background". This usually meant that they approached the conversation quite hesitantly but, more often than not, tended to warm up to it after a minute or two... No one that I spoke to knew that you could get other kinds of stem cells (e.g. Haematopoietic stem cells). On average, conversations tended to last 5 - 10 min, with a few going on for over 20 min!... I had a lot of people comment that having a beer and a chat makes our research a lot more approachable. They felt that this way we were talking "to" them rather than "at" them, if you get what I mean.'*

Researcher, Ely Beer Festival, 2018: *'The atmosphere was very relaxed and people were very receptive to our message...I had quite a few long talks with people, who asked extensive questions and are keen to get more involved with science outreach... Most people didn't know much about stem cells and were very positively surprised about the impact/potential of stem cells and their function.'*

Researcher, Ely Beer Festival, 2018: *'...people were really friendly and seemed super interested. Several groups asked questions about research into certain cancers and neuro-degenerative disorders again, always based off personal experiences with their histories/family members. Noticed with the style of this event there were a lot of people asking more specifically what I do as a researcher and about what the stem cell institute is for.... Moonshine were brilliant to have around as*

they quite often introduced us and the concept to who they were serving and that seemed to make people much more comfortable with chatting than if we approached them.'

Researcher, Ely Beer Festival, 2018: *'I probably spoke to about 25 people during my shift, and had more in-depth conversations with about half of them...mainly they wanted to talk about the use of stem cells in treating disease. Their questions were either based on what they had heard about in the news, or people they knew with diseases where there was talk of potential stem cell therapies'*

Researcher, Ely Beer Festival, 2018: *'I had several conversations with different people about the potential clinical benefits of stem cell therapies. Most of these were focused on potential treatments for Parkinson's, Alzheimer's and eye degenerative diseases... this helped me to get out of the science bubble and appreciate the eventual purpose of the research that we conduct. I was surprised at how interested most people were in talking to me and it was a very pleasant and friendly atmosphere.'*

Researcher, Brewing a Taste for Stem Cells 2018: *'I thought people would be more scared of the research and some of the tools we use, such as organoids, but they were just very intrigued. This was so reassuring and made me very hopeful for how we can hopefully have a positive impact.'*

Researcher, Brewing a Taste for Stem Cells 2018: *'It changed my idea of how a large audience reacts to potentially controversial research. I was pleasantly surprised by the fact that everyone considered other people's point of view and how wonderful the discussion was, even though it was clear that many audience members had very different professional lives to the speakers.'*

Looking Forward

We are continuing to champion and serve Regenerator at many of our adult-aimed engagement events, including art openings and charity concerts. In Autumn 2019 we awarded a second public engagement seed fund to a new group of PhD students to develop a second beer. The theme for this darker ale will explore the more fundamental side of their research we do, including cell fate transitions, epigenetics, mechanical signalling, embryonic development. We hope this brew will appeal to a different, more traditional drinker, and ensure together our beers penetrate the communities we feel can most benefit from engagement, whilst training a new group of researchers to own and value engagement. We plan to experiment with evaluation techniques to capture the reach and significance of our interactions including numbers engaged, demographic, contact time with researchers, whilst maintaining the informal conversational atmosphere that has made the project a success.

Image Gallery



Cambridge and Ely Beer Festival

Researcher handing our 'pipette' beer samples at Cambridge Beer Festival. Daniel Bode (CSCI) and Simon Reeves (Moonshine) serving Regenerator at Ely Beer Festival 2018.



Regenerator on Tour and Cambridge Science Festival

Beer on tap in Cambridge Blue. Local community turn out for Science Café in Stow cum Quy. Packed house at Cambridge Sports and Social club for to learn about science of brewing and stem cell research.

