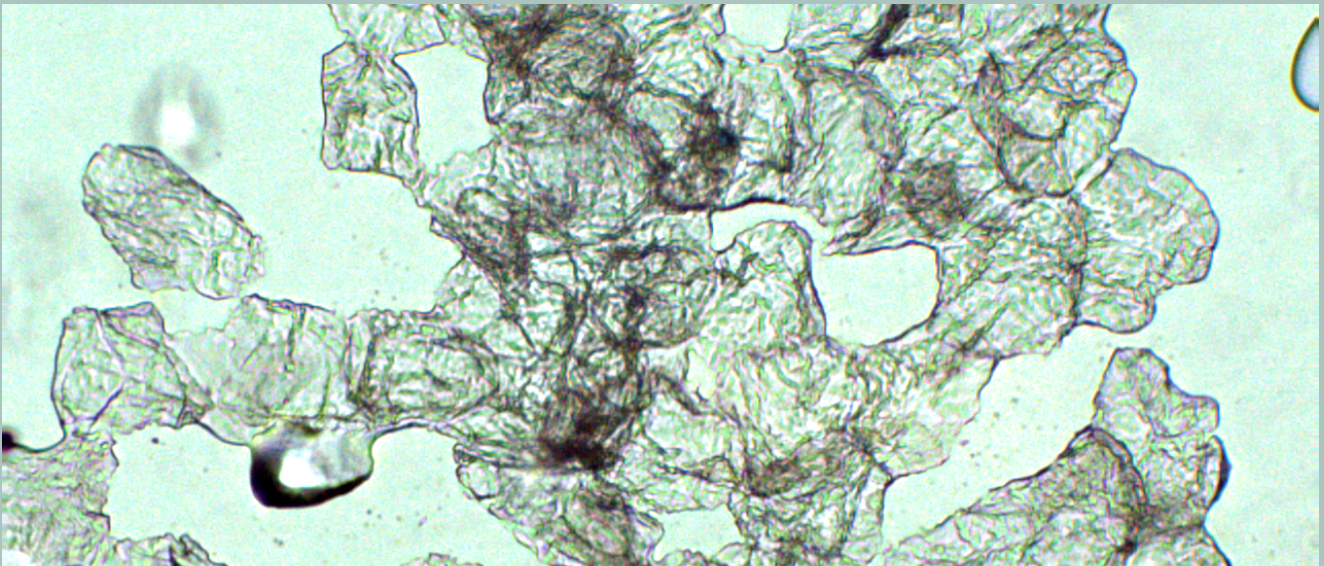




UOA D32

ART AND DESIGN:
HISTORY, THEORY AND PRACTICE



RESEARCHER

Beverley Hood

OUTPUT TITLE

We began as part of the body

OUTPUT TYPE

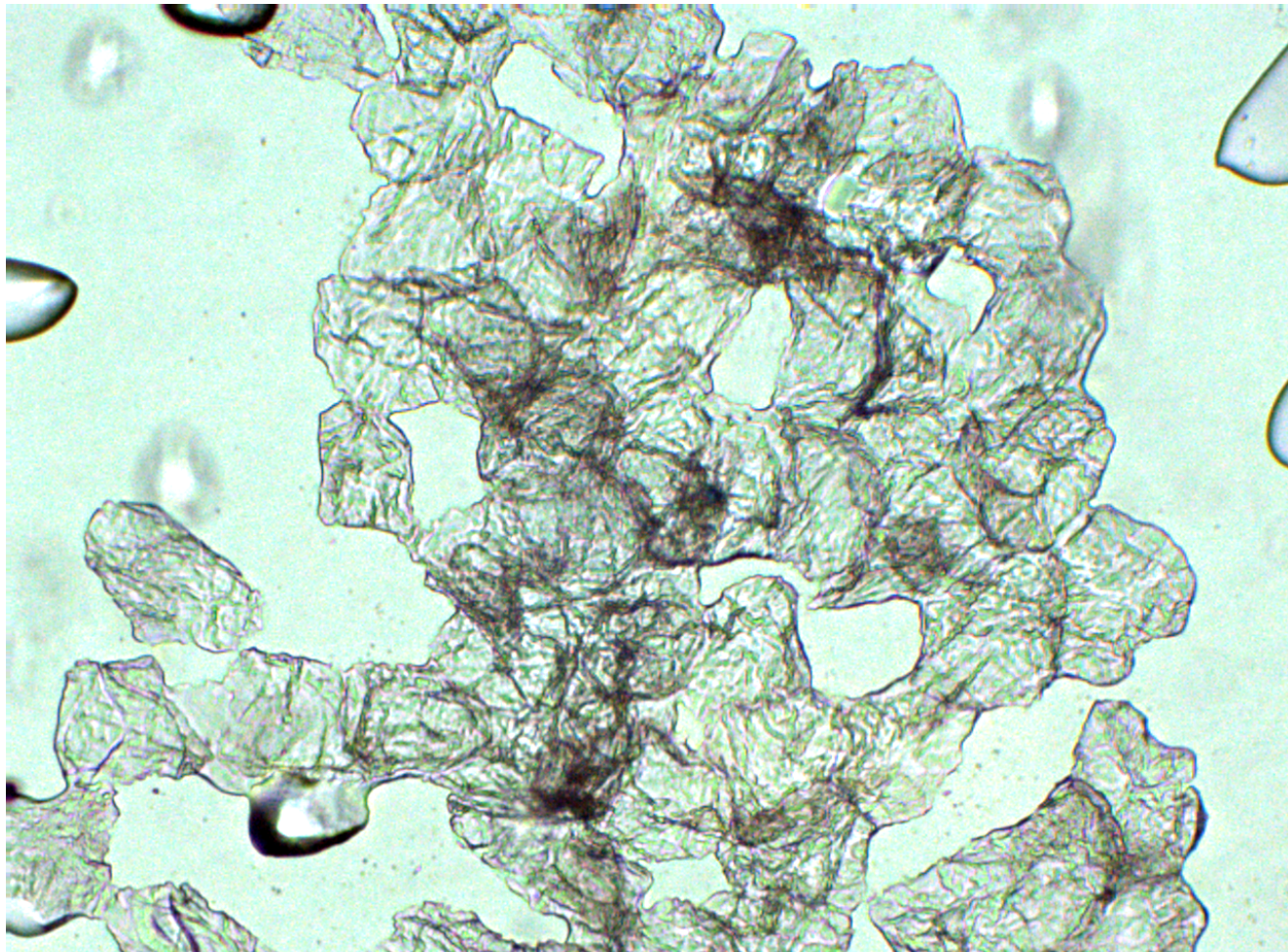
Artefacts

DATE

2017 – 2020

FIG. 1

Beverly Hood, *We began as part of the body*, work in progress, microscope image of skin cells, 2017. Image Beverly Hood.



AV output available at:

https://media.ed.ac.uk/media/t/1_jnt5vw1d

DOI:

<https://doi.org/10.7488/3399a911-a2d6-4dd0-a208-db756299fb4b>

01 / STATEMENT

We began as part of the body was a practice research project that interrogated the impact of technology and science on the body and human experience and ethical questions concerning these dynamics.

It was developed with Professor Sara Brown, in the laboratory at the School of Medicine, University of Dundee, Scotland, and ASCUS Art & Science, Scotland's first non-profit organisation connecting art and science. The project resulted in a multi-component body of outputs, including:

1. A 6 minute spoken word sound piece.
2. A set of thirty eight 3D printed skin cell models.
3. Three 360 degree photographs.
4. A Mixed Reality (MR) immersive experience for Magic Leap headset.
5. An 8 minute film.
6. An Augmented Reality app for iOS.

The project sought to bring together scientific rigour with poetic methods, and make complex genetic research more accessible. It challenged audiences to think critically about science, their role and responsibility within genetic research, and the impact such engagement might have on our understanding of what it means to be human.

We began as part of the body extends Hood's interests in creating sophisticated, experimental and challenging, yet accessible creative research projects that explore the relationship between the body, technology and science, where research, practice and impact are intertwined.

The works have been exhibited in exhibitions within the UK and internationally at galleries, events and conferences including:

22 June – 2 September 2017.
Beyond Skin, LifeSpace Science Art Research Gallery, Dundee.

28 July – 5 August 2017.
Field Works – Arts & Ethics Research Group, Berlin Blue Gallery, Germany.

September – December 2017.
Expressions of Eczema, Slessor Gardens, Dundee.

9 July 2018.
V&A Digital Futures, Electronic Visual Arts (EVA) London. 2018.

12–14 July 2018.
xCoAx 2018, Museo del Traje, Madrid, Spain.

19 June 2020 onwards.
Dyscorpia 2:1, Alberta, Canada (online).

12–20 November 2020 extended to 17 December 2020.
Being Human Festival, Inspace, Edinburgh (online and 7 screen outdoor projection).

9–22 November 2020.
Radiophrenia, art radio station programme, Glasgow.

FIG. 2

Beverley Hood, *We began as part of the body*, extract of script for speech synthesis sound piece, 2017. Image Beverley Hood.

We began as part of the body,
a body,
several bodies,
We were part of the whole...

But we were removed,
excess,
surgical left-overs,
unwanted and discarded by our own consenting bodies.

But we were not thrown away...

We went from theatre to the lab,
in a plastic bucket with a lid on it,
small, white, kind of clinical looking.

given codes, numbers, our essential link to our original bodies.

In the lab...
with scissors and knives,
we are trimmed, and chopped, into manageable size pieces,
1 or 2 centimetres square,
and digested with enzymes.

To release our single cells,
our outermost population,
keratinocytes,
our epidermis.

Our dermis is re-suspended, left to further digest in enzymes overnight
until we release our innermost cells,
fibroblasts.

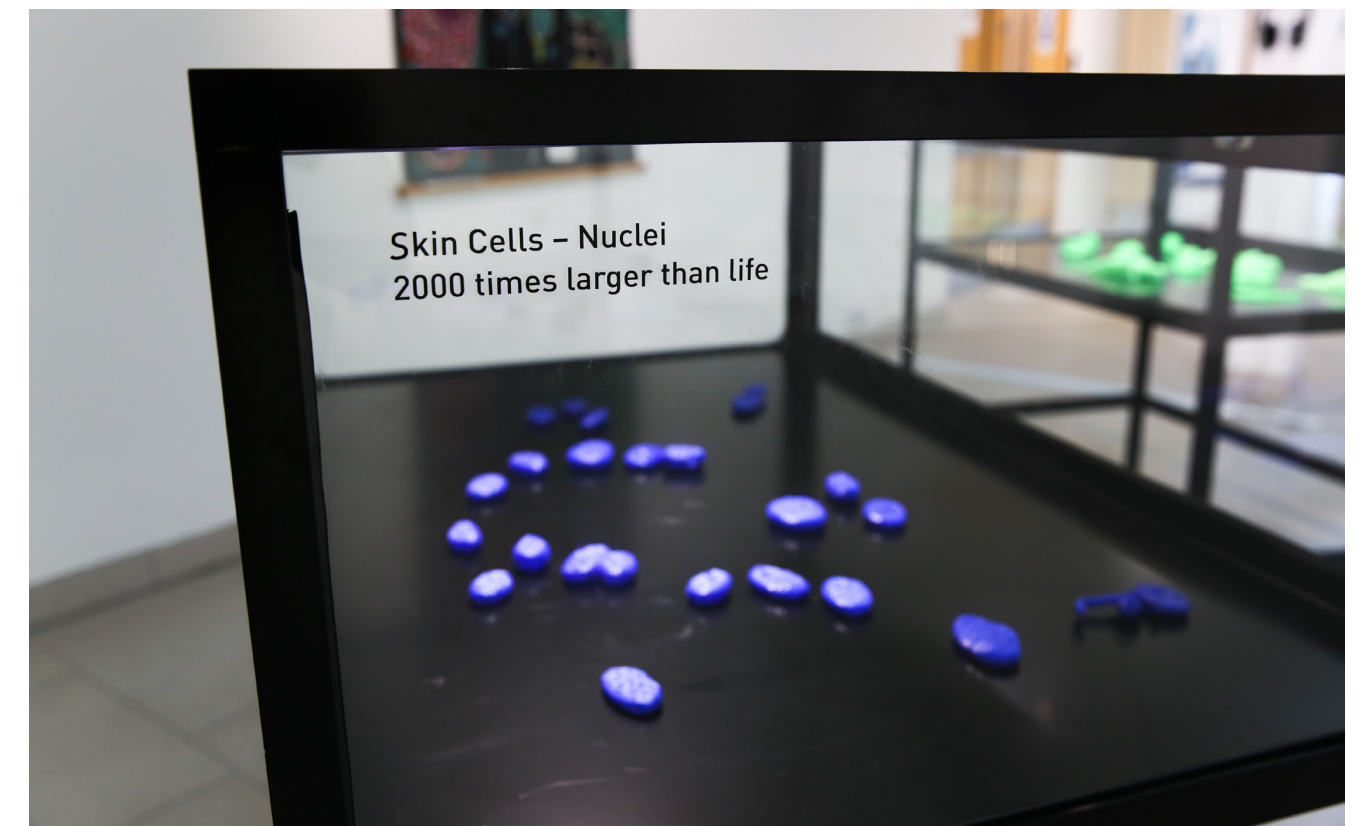
Separated, we are nurtured,
pip-etted into flasks,
submerged within a culture medium,
containing all the nutrition a cell needs, optimised for growth
and incubated.

And so begins the process of putting our Cells back together,
into a structure that resembles Skin,
Organotypic.
Artificial.
skin equivalent.

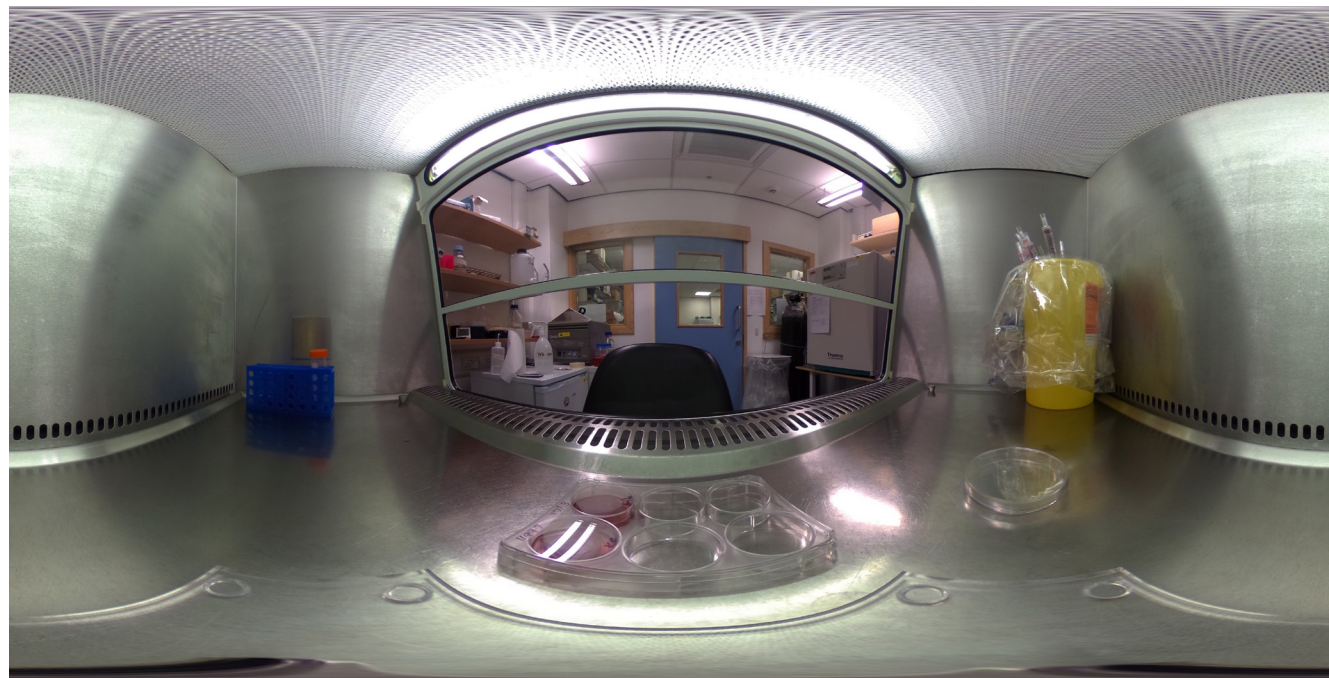
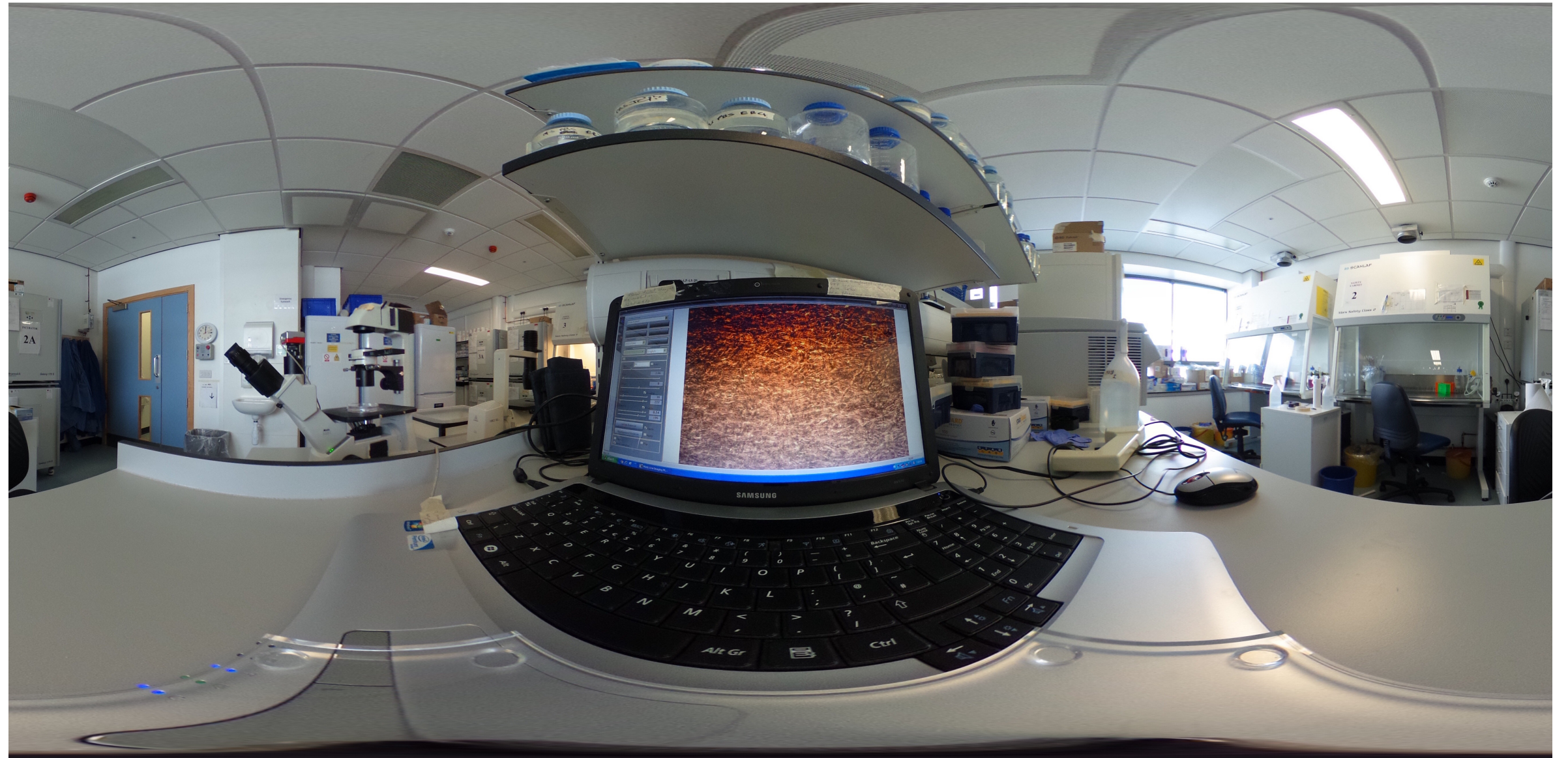
Our keratinocytes are grown with foreign cells,
treated cells,
unable to grow.
neutralised.
Their purpose?

FIGS. 3-4

Beverley Hood, *We began as part of the body*, 38 x 3D printed skin cell models, 2017. Images Beverley Hood.



FIGS. 5-7
Beverley Hood, *We began as part of the body*, 3 x 360 degree photographs, 2017. Images Beverley Hood.



FIGS. 8-9
Beverley Hood, *We began as part of the body*, mixed reality experience (top) and film still (below), 2020.
Image Beverley Hood.



FIG. 10
Beverley Hood, *We began as part of the body*, Augmented Reality app 2020. Image Beverley Hood.



02 / RESEARCH DIMENSIONS



FIG. 11
Beverley Hood, *We began as part of the body*, 3D printed cell models, 2017. Photo Erika Stevenson.

We began as part of the body began with a commission from the Art & Ethics Research Group at the University of Edinburgh.

This was followed by an artist in residence post which Hood took up in 2017 at the eczema genetic research laboratory of Professor Sara Brown, (University of Dundee), organised by ASCUS Art & Science.

A series of artworks were created in response to the activities of the lab, which undertakes research dedicated to understanding the causes of atopic eczema, a common and often overlooked skin condition. The creation of these works involved an interdisciplinary team of collaborators led by Hood, interweaving and combining expert input from the arts, sciences and technology.

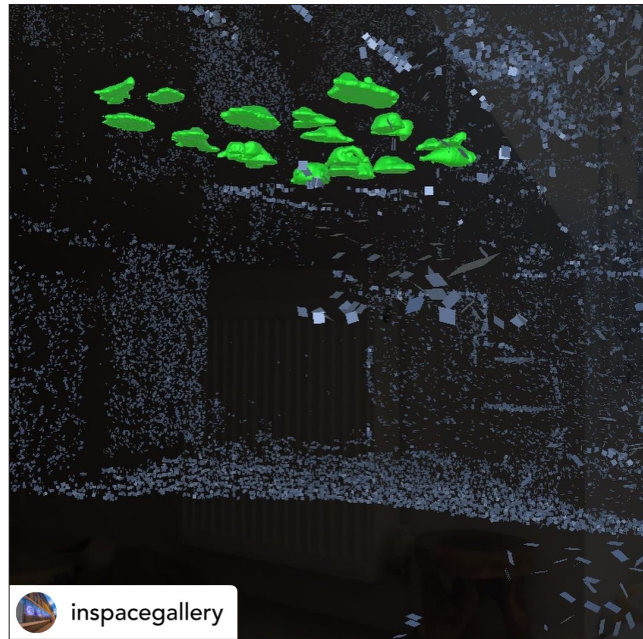
Hood was fascinated by the skin samples themselves, which involved organotypic, artificial skin cultures. What intrigued Hood about these cells is that they are real, but synthetic, taken from a living human but then processed and retained outside of the body. At once similar and yet different from the cells that exist within our own bodies, Hood was interested in how the experience of such samples affects the understanding of our own bodies, not only in medical and scientific terms but in terms of what it means to be human. As an artist and creative researcher, Hood was particularly interested in the affective potentials of technology and scientific research.

The initial research artworks included a spoken word sound piece, a set of 3D prints and 360 degree photography.

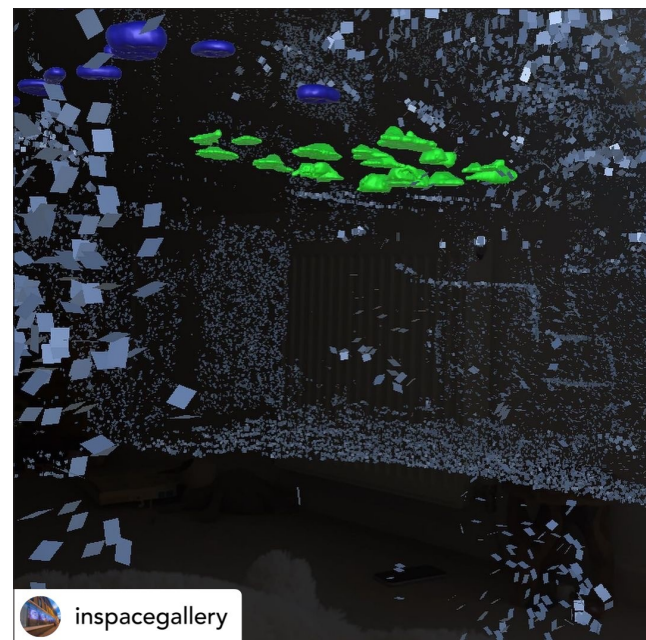
The sound piece was created using speech synthesis, and recreated the 3 week journey of an artificial skin cell culture from operating theatre to research lab and finally to disposal, written from the point of view of the cells.

Artificial skin cells were cultivated and scanned using confocal microscopy – a non-invasive, high-resolution, skin imaging tool – to create a series of 3D models, which were printed at 2,000 times larger-than-life (FIG. 10). Enlarged into objects that could fit within a human hand, the cells were given a tangible, physical manifestation.

A series of three 360 degree photographs presented the viewer with an immersive experience of the different environments of the lab; a window into a world not normally accessible to the public. Here we are presented with a somewhat ghostly version of the lab environment, without researchers or technicians, inhabited only by specimens; the organotypic, artificial skin.



FIGS. 12–14
Beverley Hood, *We began as part of the body*, Augmented Reality app, 2020. Images Beverley Hood.



These artworks were further developed into an immersive artwork consisting of a Mixed Reality (MR) experience for Magic Leap headset, film and Augmented Reality (AR) app for iOS, (for iPhone) developed between 2018–2020, and funded by Creative Scotland, the Centre for Data Culture & Society, ECA and UoE.

The MR version combines 3D skin models with digital LIDAR and electromagnetic audio scans of the laboratory, to create an immersive journey, inhabited by magnified skin cells, which overlaps with the viewer's real world experience.

The AR version is available as a free downloadable app, enabling audiences to experience the digitally captured lab, guided by the spoken-word speech synthesis narration, telling the story of the organotypic (artificial) skin's short 'in-vitro' life, on their own devices. See Appendix, page 30.

The film is an 8 minute, single screen version, comprised of footage rendered from the MR project within the Unity game engine – a digital platform used to create three-dimensional, two-dimensional, virtual reality, augmented reality games and simulations. Additionally a seven screen adaptation was created to be projected on the Inspace City Screen projection wall from 12–30 November 2020, a large-scale, outdoor, public exhibition space in the centre of Edinburgh.

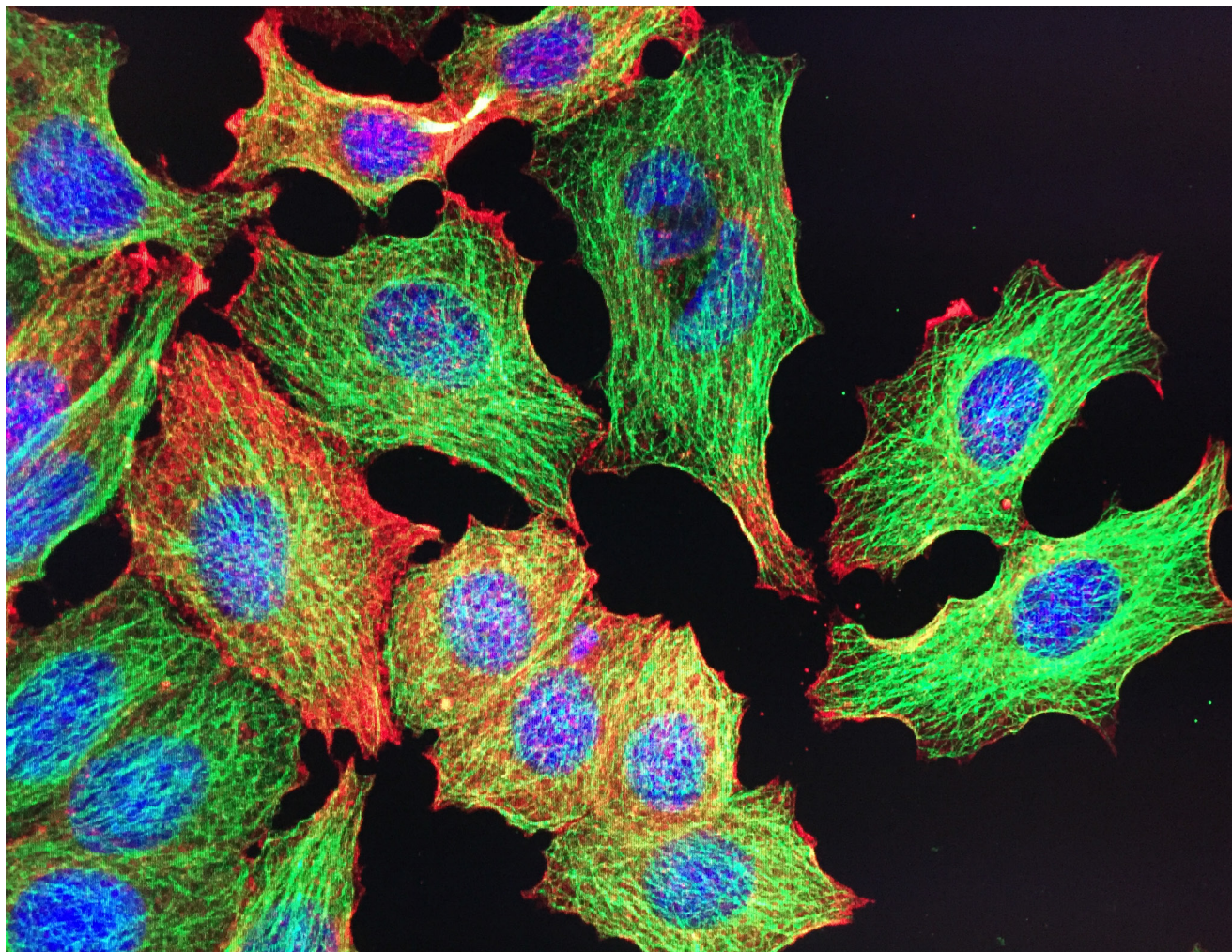
The works collectively create an otherworldly and yet critical aesthetic experience that blends realities, enabling audiences to encounter the artificial cell cultures and their lived, disembodied experience. The viewer is experientially immersed in the poetic, human and ethical issues raised by the activities of the lab.

FIG. 15
Beverly Hood, *We began as part of the body*, Inspace Gallery, film still, 2020. Image Beverly Hood.



FIG. 16

Beverley Hood, *We began as part of the body*, microscope image of skin cells, 2017. Image Beverley Hood.



03 / ORIGINALITY

We began as part of the body is innovative in its multi-media exploration into scientific research that presents new approaches to image-making and new possibilities for art's interaction with scientific lab work.

1. Media

The work breaks new ground in its combination of Mixed and Augmented Reality artworks, presenting audiences with a new experiential paradigm that blends the real and digital environments.

It is amongst the first contemporary art projects to use Magic Leap, a headset at the forefront of a new wave of immersive technologies, the first of its kind developed in Scotland, and one of few in the UK. Marina Abramovic's project *The Life* (Serpentine Gallery, February 2019) was the first to present an artwork developed for the Magic Leap.

2. Audience engagement

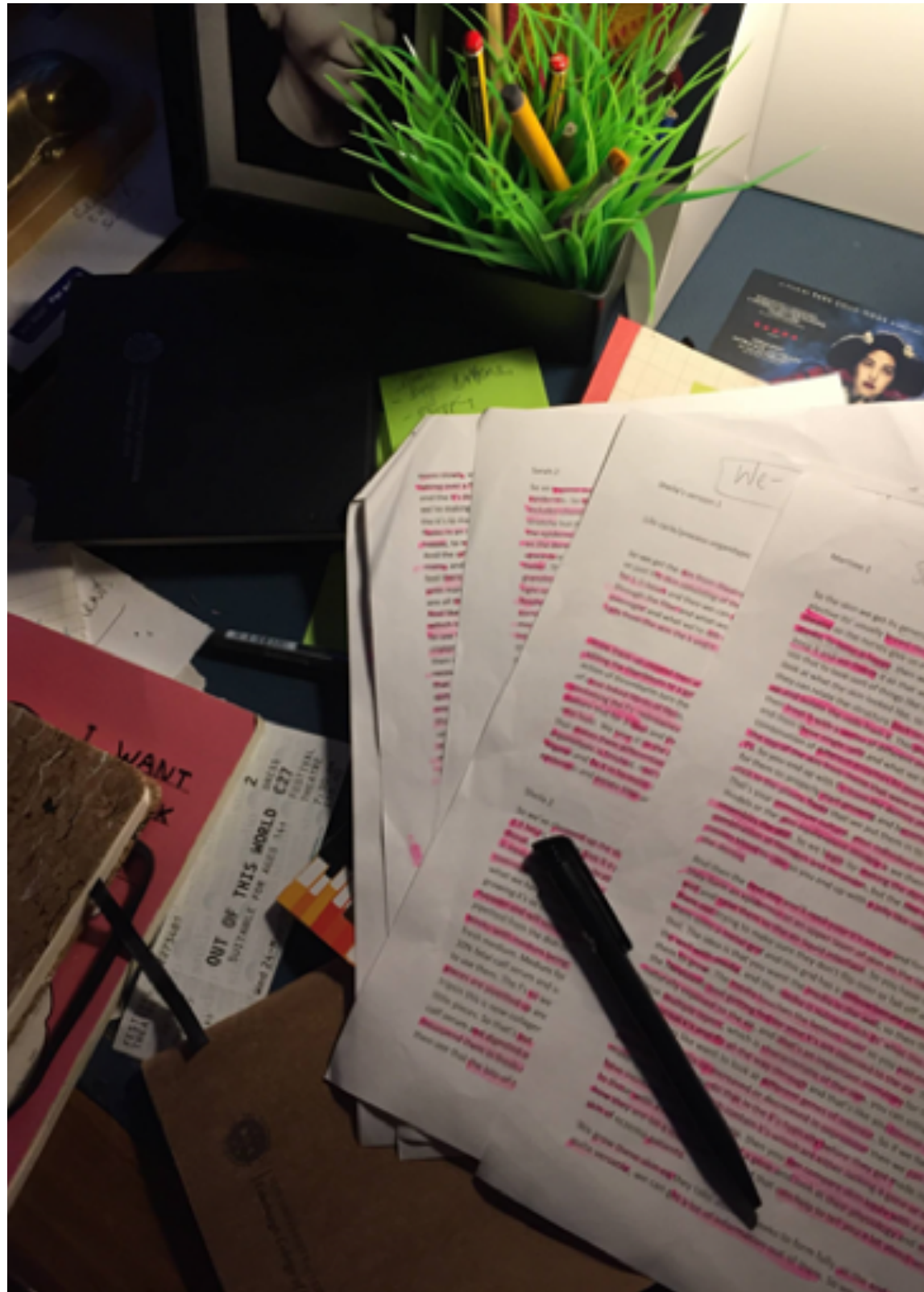
The work brings new insights to the general public about topical issues around health, science and the body. Combining a critically poetic arts-based approach that involved innovative, multi-media visualisation processes and narrative devices, with scientifically obtained, accurate material, the project gave audiences the opportunity to engage these themes and questions beyond the quantitative structures and systems of science.

In offering audiences insights into both practical activities and philosophical questions around clinical translational research, which takes research from the laboratory and into healthcare, the work pushes the boundaries of arts and science audience engagement.

For the scientists, the project changed the way they think about their own research, inviting them to see it in new and surprising ways and reflect anew on their research in practical, ethical and philosophical terms.

FIG. 17

Beverley Hood, *We began as part of the body*, script development, 2017. Image Beverley Hood.



04 / RIGOUR

Research began with a period of Hood observing the day-to-day activities of the lab, from carefully nurturing skin cultures, to the precise, complex and delicate processes used to analyse these samples.

The script for the sound piece was written by Hood in response to interviews undertaken with staff from the Brown Lab. It follows the skin's journey from theatre to lab, to disposal, and is written from the point of view of the organotypic, artificial skin cultures. See Appendix, page 30.

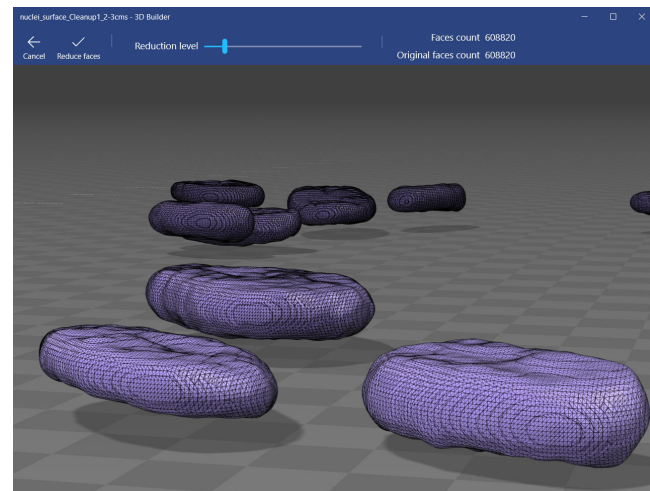
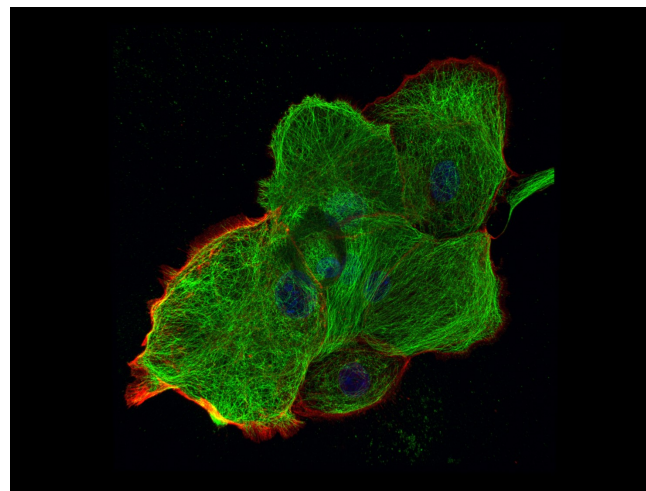
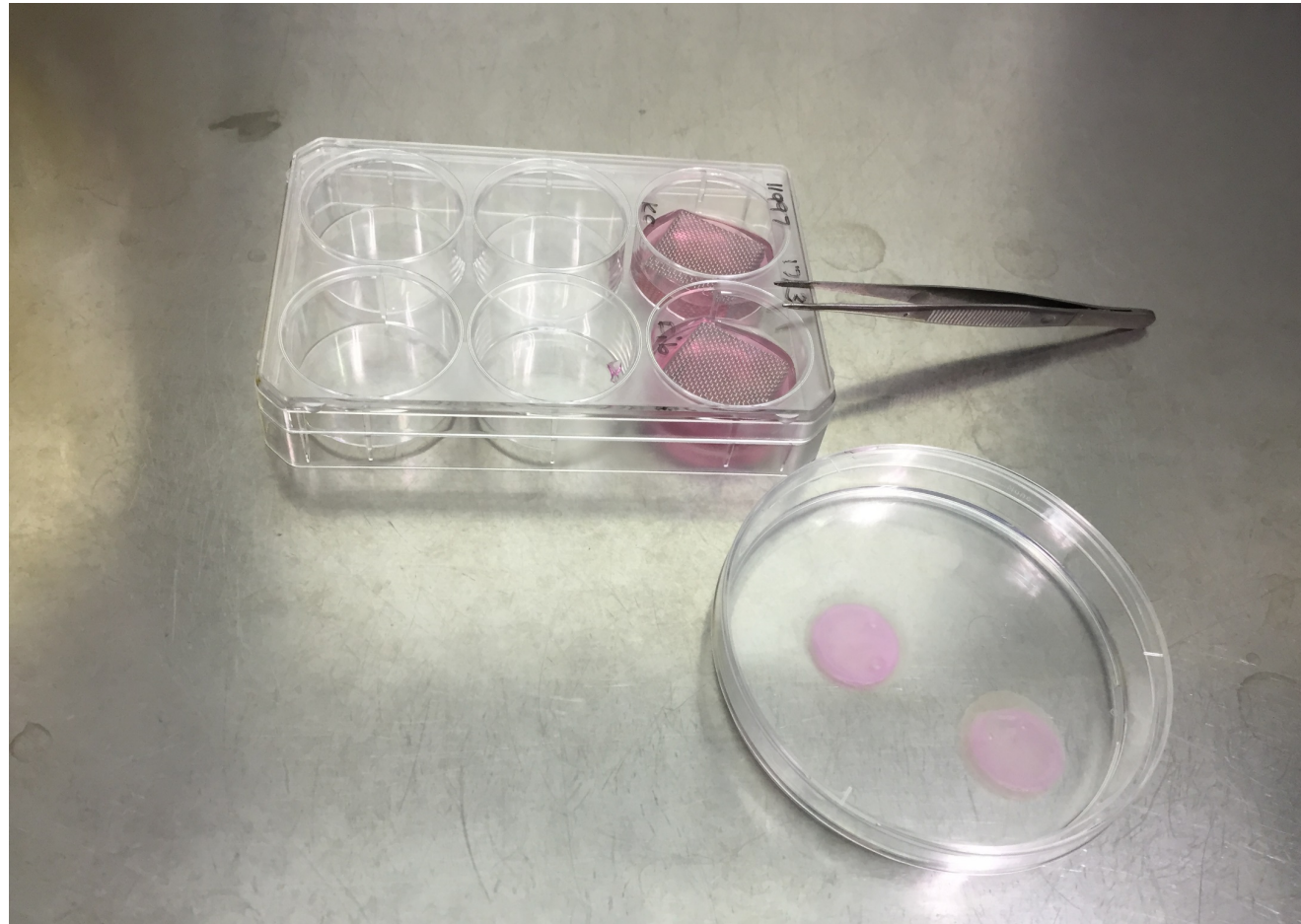
The 3D prints were developed from living skin cells, captured using confocal microscopes, and printed at 2,000 times life-sized, to give them a tangible, physical presence.

A series of 360 degree photographic images accompanying the above works were captured from the point-of-view of the skin cultures. Positioned inside the extractor hood, the culture trays, and so on, the images present the viewer with an immersive experience of the different environments in the lab; a window into a world not normally accessible to the public.

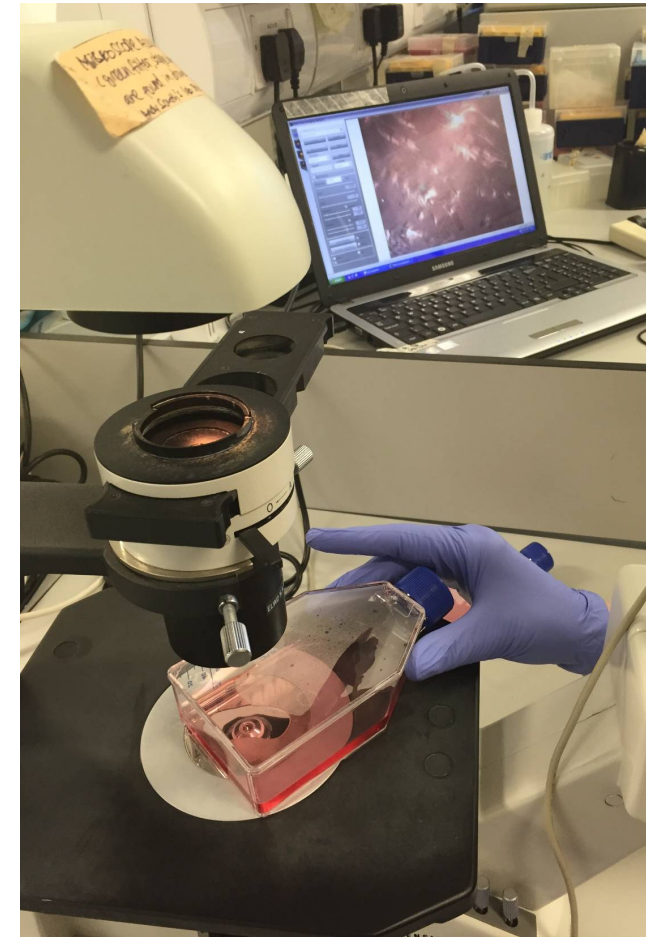
The mixed reality experience, AR app and film were developed from 2018–2020, as an extension of the initial research artworks. Further developed through the addition of digital LIDAR and electromagnetic scans, the artworks combine aspects of the original elements to produce a series of experiences that blend digital and real world environments and objects.

The creation of the work was led by Hood in collaboration with Unity developer Hemal Bodasing, sound designer Zoe Walker, and digital design studio Liminal Studios. It developed in iterations, and was trialled on virtual reality, augmented reality and mixed reality technologies, for suitability and viability. The launch of the Magic Leap mixed reality headset in 2019 presented the optimum technological platform to present the conceptual, formal, aesthetic and experiential qualities of the work.

The project was adapted to AR and film in 2020 to enable the project to be exhibited within Covid restrictions. The project evolved through a rigorous process of development and testing. Project prototypes were regularly trialled with development teams, wider project contributors, data driven innovation academics and the local media art community. Feedback was analysed and reflections fed back into the ongoing production of the work.



FIGS. 18–20
Beverley Hood, *We began as part of the body*, organotypic skin cell culture (top), confocal microscopy image (bottom left) and 3D images of skin cell nuclei (bottom right), 2017. Images Beverley Hood.



FIGS. 21–22
Beverley Hood, *We began as part of the body*, cells under microscope (left) and laboratory (below), 2017. Images Beverley Hood.



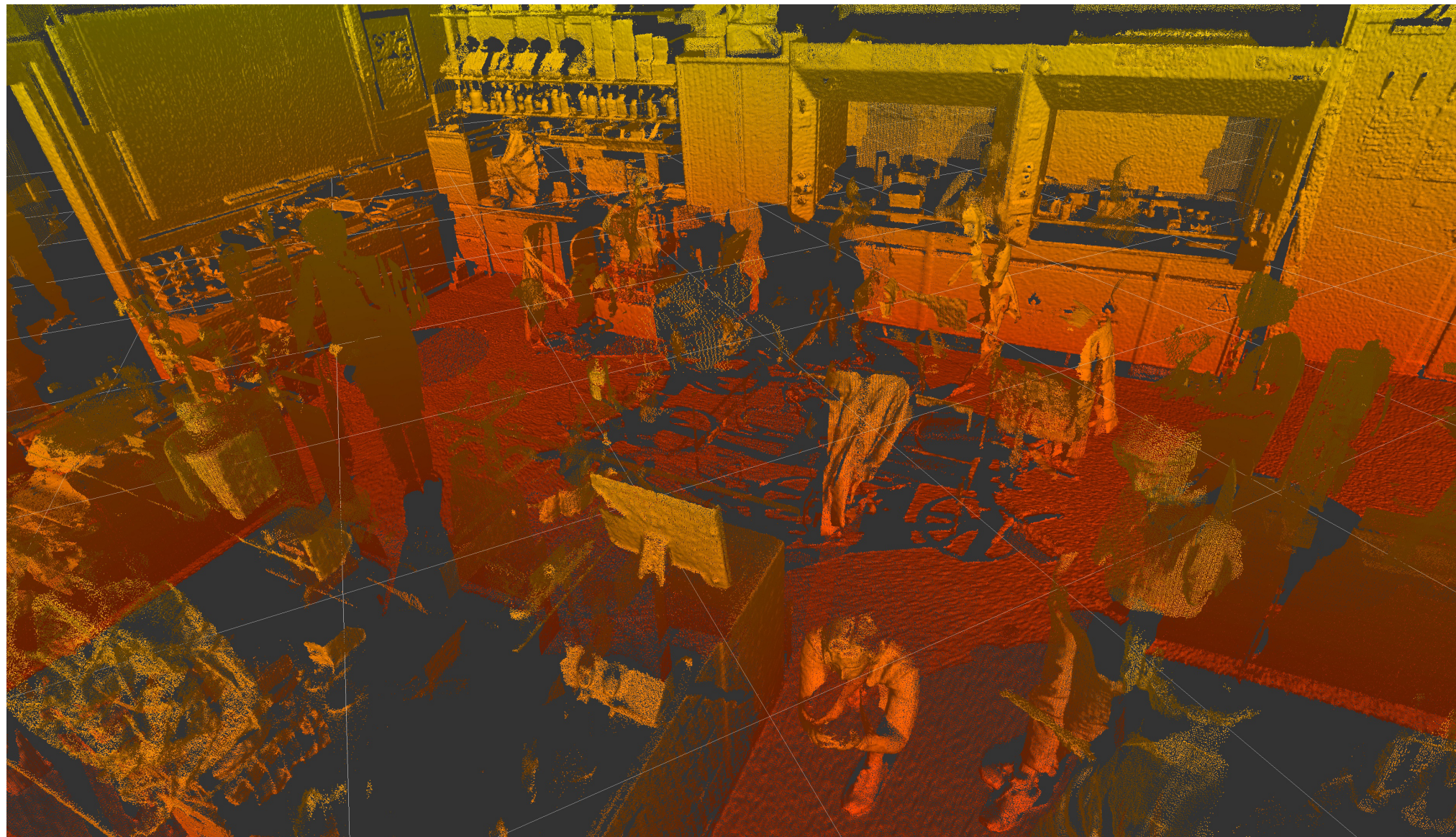
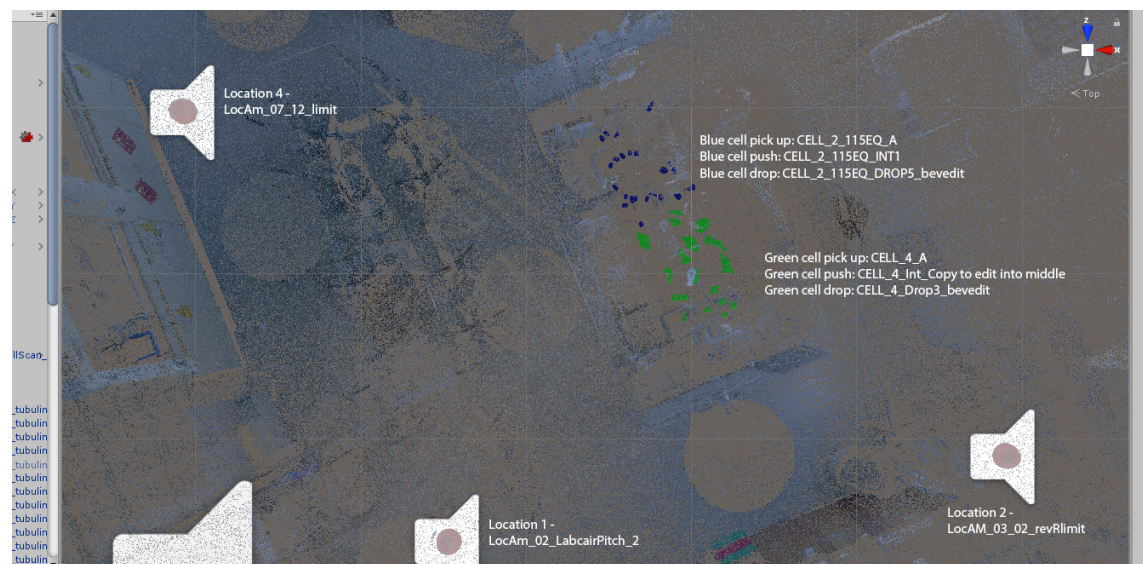


FIG. 23
 Beverley Hood, *We began as part of the body*, work in progress, LIDAR scan, 2019. Image Beverley Hood.

FIGS. 25–26
 Beverley Hood, *We began as part of the body*, work in progress, Mixed Reality experience, 2020. Image Beverley Hood.



FIG. 24
 Beverley Hood, *We began as part of the body*, Unity game engine development still, 2020. Image Beverley Hood.



05 / SIGNIFICANCE



FIGS. 27–29
Beverley Hood, *Beyond Skin* exhibition, 3D printed models, sound piece and 360 degree photographs, 2017. Photos Erika Stevenson.

The Atopic residency, an ‘established artist position’, was awarded through a competitive national selection process, managed by ASCUS Art & Science and Professor Sara Brown, the only Wellcome Trust Senior Research Fellow in Clinical Science in the UK, working in the field of dermatology.

The artworks have been presented in the following exhibitions:

22 June – 2 September 2017.
Beyond Skin, LifeSpace Science Art Research Gallery, Dundee.

28 July – 5 August 2017.
Field Works – Arts & Ethics Research Group, Berlin Blue Gallery, Germany.

September – December 2017.
Expressions of Eczema, Slessor Gardens, Dundee.

9 July 2018.
V&A Digital Futures, Electronic Visual Arts (EVA) London. 2018.

12–14 July 2018.
xCoAx 2018, Museo del Traje, Madrid, Spain.

19 June 2020 onwards.
Dyscorpia 2:1, Alberta, Canada (online).

12–20 November 2020 extended to 17 December 2020.
Being Human Festival, Inspace, Edinburgh (online and 7 screen outdoor projection).

9–22 November 2020.
Radiophrenia, art radio station programme, Glasgow.

The project was supported by the Arts & Ethics Research Group, University of Edinburgh (£1.12k), Wellcome Trust (£4.84k) Creative Scotland (£14k), Edinburgh College of Art (£2.5k), the University of Edinburgh (£3.64k) and the Centre for Data, Culture & Society, UoE (£11.5k).

The *Beyond Skin* exhibition at Lifespace, the only art and science focused gallery in Scotland, and one of few in the UK, was curated by Professor Sarah Cook and included the initial research artworks.

The work was subsequently invited to be exhibited at *Expressions of Eczema*, Slessor Gardens, a municipal outdoor, public exhibition space in Dundee, located in the newly re-landscaped city centre, adjacent to the V&A.

The *Field Works – Arts & Ethics Research Group* exhibition at Berlin Blue, a private gallery in Berlin, was curated by Gallery Director Renata Kudlacek.

The work was competitively selected for the both the *V&A Digital Futures* event and *xCoAx* (FIG. 31), which are established peer-reviewed international platforms for the presentation of projects exploring the intersection between art and technology.

An adapted version of the research artworks was included in the online exhibition *Dyscorpia 2:1*, at the invitation of Canadian curator Marilene Oliver.

The adapted AR app and film versions of the work were exhibited as an online exhibition with Inspace Gallery, as part of the Centre for Biomedicine, Self & Societies programme of events for *Being Human*, the UK's national festival of humanities (12–22 November 2020).

The spoken word soundtrack component of the work was included in *Radiophrenia*, Glasgow's art radio station programme, from 9–22 November 2020.

The Mixed Reality immersive artwork and previous research artworks were scheduled to be presented as a solo exhibition at the Sciennes Gallery, Summerhall, as part of the Edinburgh International Science Festival 2020 (4 April – 20 June 2020) but this has been postponed due to the Covid pandemic. Hood presented an *Atopic Art* workshop at the ASCUS Art & Science Lab in partnership with the Edinburgh International Science Festival (EISF), and the Brown Lab staff, 14 April 2017.

The workshop involved a range of participants from teenagers to pensioners, and gave insight into the artistic process and art-science collaboration in action.

A series of the 3D prints were purchased by Professor Brown's lab and have been incorporated into her innovative science public engagement work.

FIG. 30

Beverley Hood, *Expressions of Eczema*, Slessor Gardens, Dundee, 2017. Photo Beverley Hood.

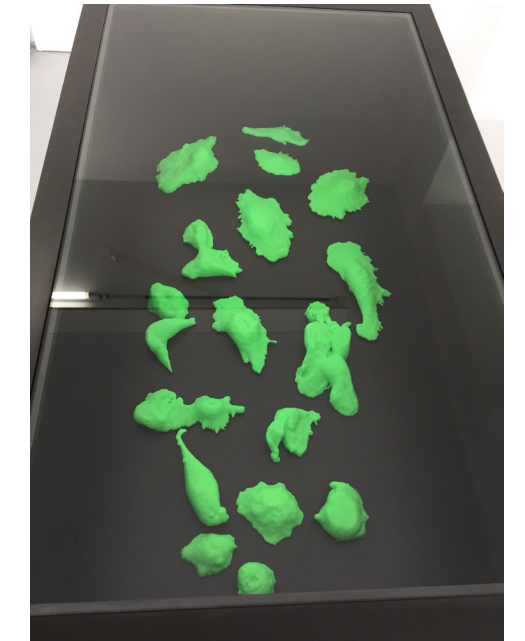


FIG. 32

Beverley Hood, *xCoAx*, Museo del Traje, Madrid, 2018. Photo Beverley Hood.

FIG. 31

Beverley Hood, *Field Works – Arts & Ethics Research Group*, Berlin Blue Gallery, Germany, 2017. Photo Beverley Hood.



FIGS. 33–36
Beverley Hood, *Atopic Art*
workshop, ASCUS Art & Science,
2017. Photos by Miriam Walsh.

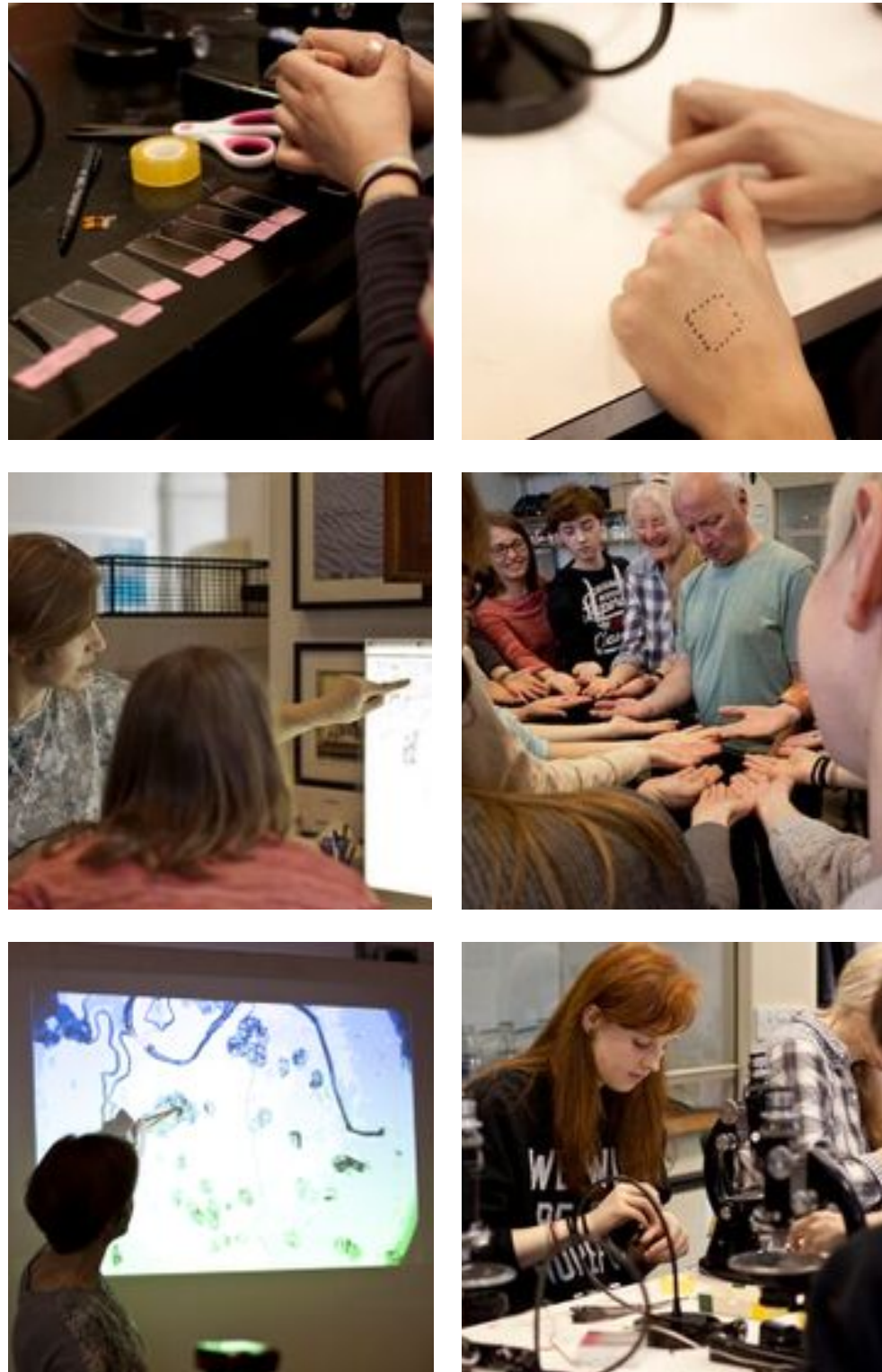


FIG. 37
Beverley Hood, *We began as part*
of the body, 7 screen projection at
Inspace City Screens, 4 December
2020. Photo Beverley Hood.



06 / APPENDIX

Appendix 1

Beyond Skin exhibition, LifeSpace Gallery, Dundee.

<http://lifespace.dundee.ac.uk/exhibition/beyond-skin>

Appendix 2

Fieldworks – Arts & Ethics Research Group exhibition, Berlin Blue Gallery, Germany.

<https://bba-gallery.com/berlin/exhibitions/field-works>

Appendix 3

Positively Squishy, Creative Research in the Lab, Mason Institute Lecture.

<http://bit.ly/2Ftlxi6>

Appendix 4

We began as part of the part of the body, a sound artwork as creative correspondence, RAI2018.

<http://bit.ly/2ImKiun>

Appendix 5

We began as part of the body, ASCUS blog.

<https://www.ascus.org.uk/we-began-as-part-of-the-body-blog-post/>

Appendix 6

Script for Speech Synthesis.

<https://www.research.ed.ac.uk/en/publications/we-began-as-part-of-the-body>

Appendix 7

Film.

https://media.ed.ac.uk/media/t/1_jnt5vw1d

Appendix 8

Dyscorpia 2:1 – 3D Digital.

<https://www.dyscorpia.com/3d-digital>

Appendix 9

We began as part of the body, Inspace.

<https://inspace.ed.ac.uk/we-began-as-part-of-the-body/>

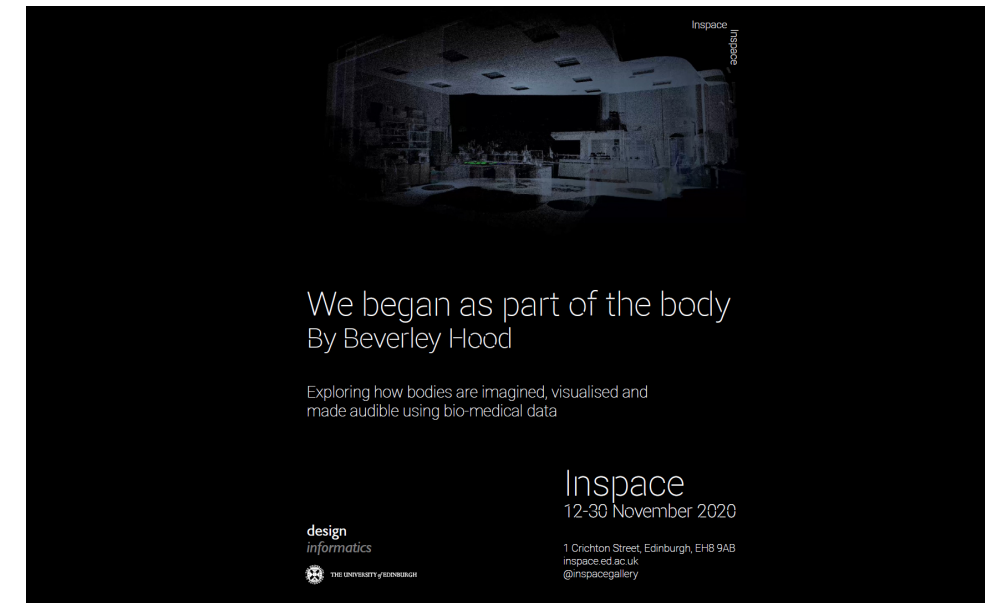


FIG. 38
Inspace exhibition poster, 2020.
Image Beverley Hood.

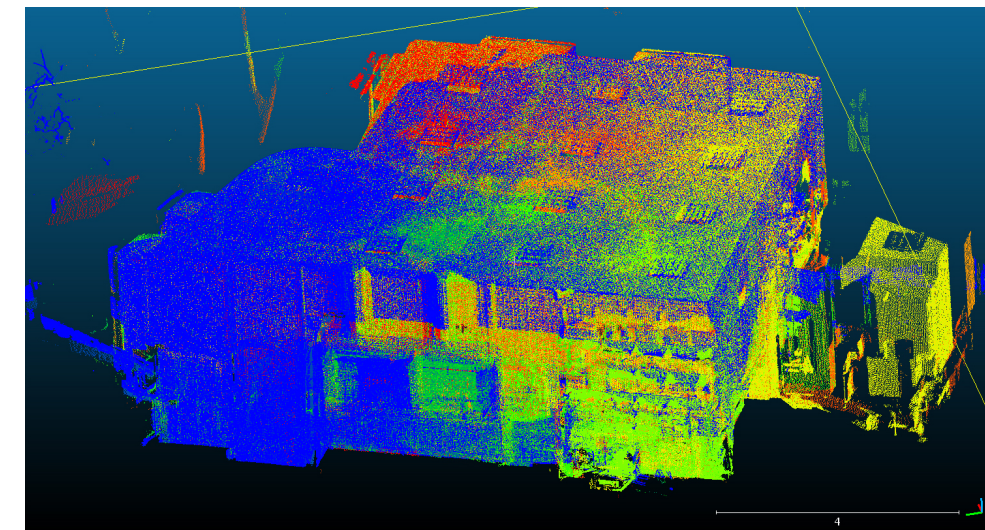


FIG. 39
LIDAR scan, 2019. Image
Beverley Hood.

Invited lectures delivered by Hood

'Positively Squishy – Creative Research in the Lab'
Mason Institute Lunchtime Seminars, focusing
on interdisciplinary research into human health.
University of Edinburgh, 22 February 2018.

*'We began as part of the body – a Sound Work
as Creative Correspondence'*, Art, Materiality
& Representation Conference, Design
Anthropology Track.
British Museum, London, 3 June 2018.

'Design: The Frontiers of Art and Science'.
Edinburgh Science Festival 2019,
Riddles Court, Edinburgh, 9 April 2019.

*'Tolerating Uncertainty: We began as part of the
body'*, CFP Transdisciplinary Imaging Conference
2020 : DARK EDEN.
Artspace, Sydney, Australia (online),
6–9 November 2020.

*'Tolerating Uncertainty: We began as part of
the body Taboo – Transgression – Transcendence'*
in Art & Science.
University of Applied Arts, Vienna (online),
26–28 November 2020.

'We began as part of the body'. Beverley Hood
in conversation with Professor Sara Brown.
Design Informatics Lecture Series,
University of Edinburgh, 19 November 2020.



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