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EVOLUTIONARY TRANSGRESSIONS

the absence of Alice and her lines of flight

Svenja Kratz

"Ontologies must remain thresholds - from force to form to force"

Erin Manning, 2009



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A grayscale microscopic image of biological tissue, possibly a cross-section of a plant stem or a similar structure, showing various cellular and fibrous components. The image is used as a background for the title section.

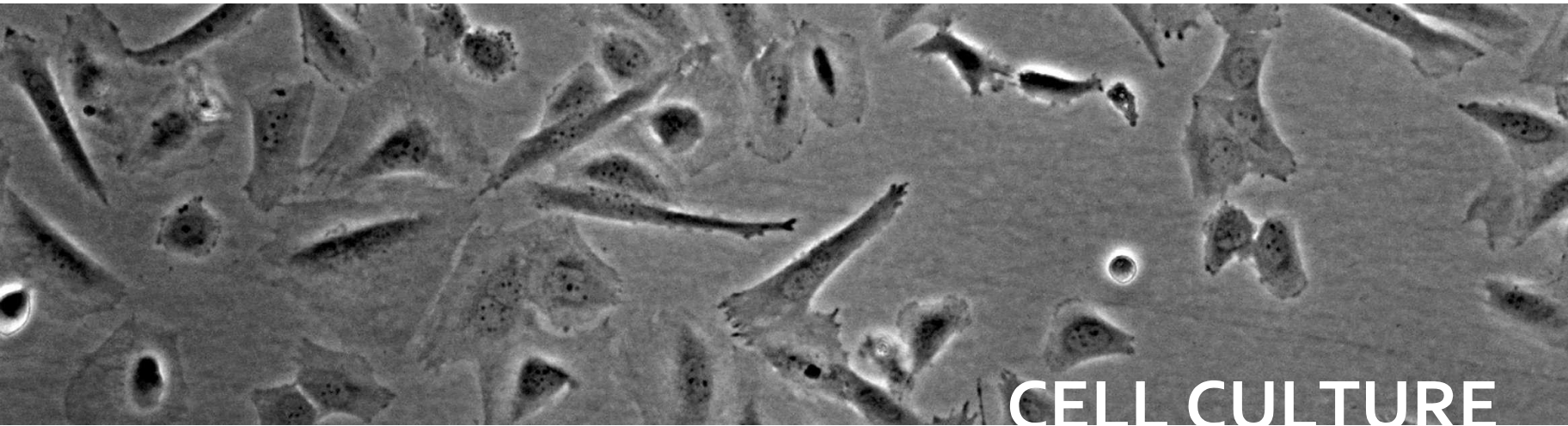
INTRODUCTION

THE ABSENCE OF ALICE

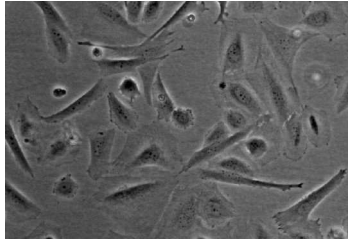
The Absence of Alice consists of a series of evolving creative works inspired by my engagement within the area of cell and tissue culture over a five year period working with the Tissue Repair and Regeneration (RR) Group, within the Cells and Tissues Domain, at the Queensland University of Technology's Institute of Health and Biomedical Innovation (IHBI). The title refers to my early experiences working with the Soas-2 cell line - a cancer cell line originally established from an 11-year old girl called Alice in 1973. All subsequent exhibitions map the creative evolution of this initial engagement into other areas of applied biology, including genetic engineering and primary culture of human and fetal calf cells.

Six evolving, multi-component exhibitions and several smaller 'deviations' form the basis of *The Absence of Alice*. Each exhibition includes several works in a variety of mediums (photomedia, sculpture, video, bioart). These works function as assemblages of interconnected ideas explored during my engagement with contemporary biotechnologies.

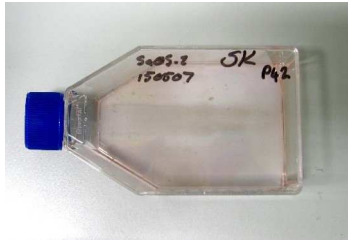
This book includes documentation from each instance of *The Absence of Alice* from 2008 - 2011, as well as the interrelated project *Towards the Immortalisation of Kira and Rama*, which was researched and developed during a three-month residency at SymbioticA in 2010.



CELL CULTURE



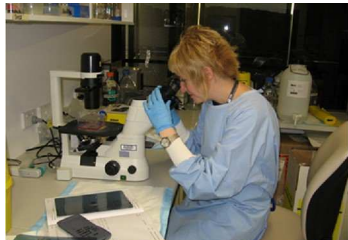
Saos-2 cells.



Saos-2 cells in tissue culture flask.



Cell flasks in incubator.



Observing cells under a light microscope.

BASIC CELL CULTURE

Cells from different organisms can be maintained in culture for prolonged periods of time. Cells are generally grown in tissue culture flasks. They can be adherent (grow on the base of the flask) or suspension (free floating) cells. Different cells isolated from different organisms or organs have different culturing and nutritional requirements. Saos-2 cells (human bone cancer cells) for example, are adherent cells. They are grown on the base of flasks in liquid nutrient media containing antibiotics, essential amino acids, vitamins and Fetal Bovine Serum (FBS) for protein. They are maintained in incubators that simulate conditions inside the body: 37°C with 5% CO₂ and 95% relative humidity.

Insect cells, such as SF9 armyworm cells, on the other hand are cultured at 28°C and do not require CO₂. Their nutrient media is also more acidic and does usually not require the addition of FBS.

Regardless of cell type, *In Vitro* cells must be maintained in sterile conditions at all times. As such, all equipment and materials must be sterilised and any work must be completed in a laminar flow cabinet.

Most cells are not visible to the human eye and can only be observed under a microscope.

When cells fill 80 - 90% of the available space within a flask they must be split. Regular maintenance keeps the cells in an active phase of growth and proliferation.

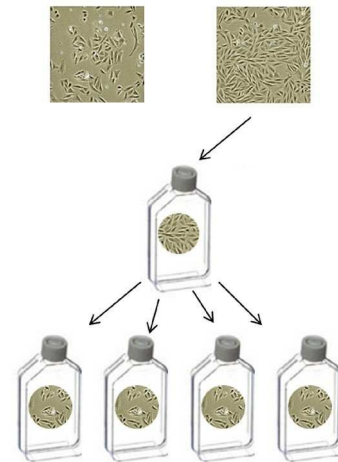
To split cells, the media is removed and the cells are washed with PBS - a buffered saline (salt) solution. The PBS is removed and the enzyme trypsin is added. This enzyme breaks down protein bonds, thus forcing cells to detach and separate.

Following trypsin digestion, media containing FBS is added to stop the digestion process. The solution is then centrifuged (spun) to condense the cells into a small palette. The old media is discarded and the cell palette is re-suspended into fresh media, which is then added to new flasks. Depending on cell type and growth rate cells are usually split from 1:4 to 1:8.

Cells must be 'fed' regularly to ensure optimal growth. This involves removing the old media and adding fresh media. Depending on cell type, new media must be added every 2 - 3 days and the cells must be passage before reaching confluency.



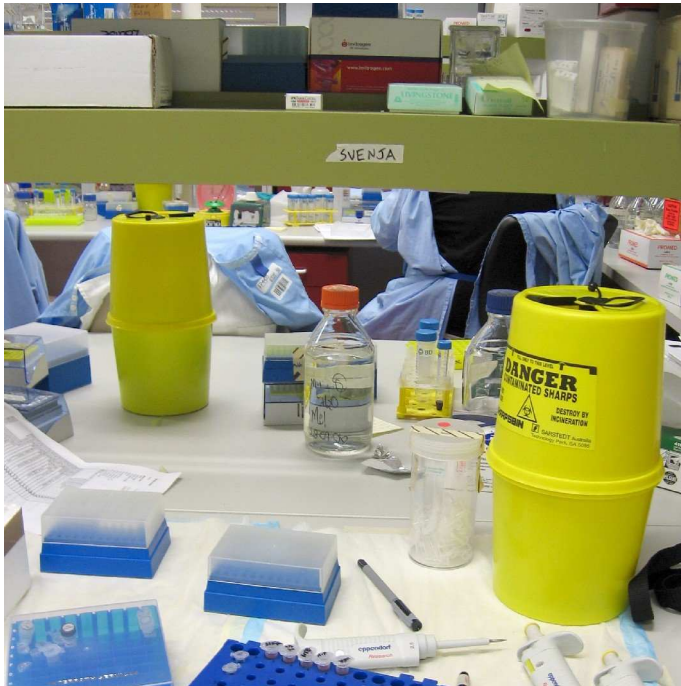
Working in laminar flow cabinet.



Passaging cells - 1:4



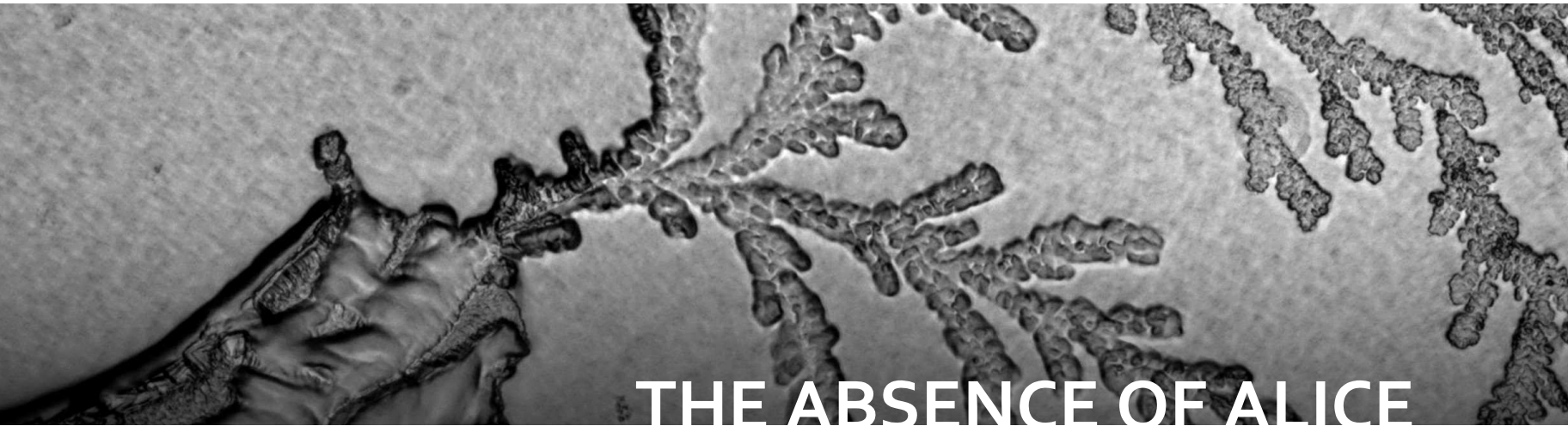
Set up in laminar flow cabinet.



Laboratory bench in main laboratory area.



Cell culture laboratory illustrating two laminar flow cabinets for sterile cell culture..



THE ABSENCE OF ALICE

THE ABSENCE OF ALICE

The first instance of *The Absence of Alice* was shown at the QUT Visual Art Gallery in February 2008. The exhibition consisted of a series of interconnected works inspired by the experience of working with Saos-2 cells over a six month period at QUT's Institute of Health and Biomedical Innovation (IHBI).

Mid-2007, I received my first flask of cells. These cells – designated Saos-2 cells – were originally derived from the primary osteosarcoma lesion (bone cancer) of an 11-year old girl called Alice, by researchers in 1973. Since the establishment and logging of the Saos-2 cell line, Alice's cells have been available commercially as biological product from numerous biotechnology supply companies including the America Type Culture Collective (ATCC). Alice's cells are used routinely in research laboratories throughout the world.

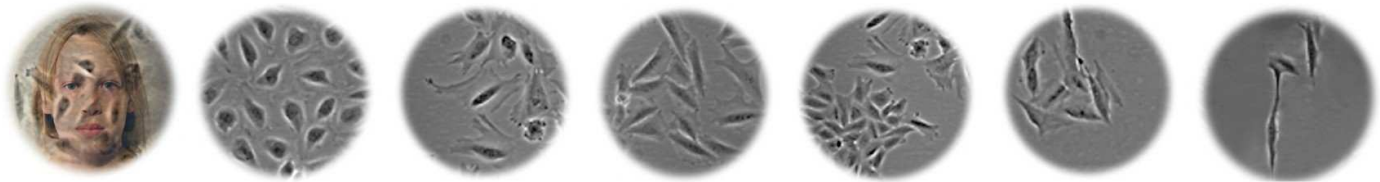
Even though the original donor Alice is most likely long deceased, due to the virulent nature of her cancer, the overall biomass of her isolated cells would now far outweigh her body if she was alive. The cells themselves are also not static, but highly dynamic and

interconnected organisms that can respond dramatically to changes in environmental conditions (e.g. altering the media [the nutrient solution in which the cells grow] or co-culturing multiple cell lines). The longer, they are grown and maintained in cell culture and the more they tend to change and mutate, becoming increasingly 'other' from the cells originally isolated from the young girl. Indeed, during the first six months of working at IHBI, I passaged (split) Alice's cells 78 times. During later passage stages, the Saos-2 cells exhibited increasingly strange properties: they became increasingly elongated and numerous cells were multi-nucleated. As such, lower passage number cells are preferred during scientific research to ensure the results remain consistent and can be duplicated.

Since most cell lines are cancer or transformed cells (e.g. that have been genetically altered through the introduction of viral or bacterial DNA), they are essentially mutant cells. Unlike 'normal' cells which can only replicate an average of 50 times, cell lines are able to divide almost indefinitely. They are also grown in laboratory situations where their environments can be tightly controlled and where they live in isolation from the other cells with which they were originally designed to co-exist. Without an immune system, cells from different people and animals can often live together (if cultured correctly).

As such, they are not particularly good models for studying the behaviour of cells within a human body. To me they are uncanny and alien organisms. Alice is absent.

The works produced for *The Absence of Alice* comment on the transformative capabilities and continual becoming of Alice's Saos-2 cells, as well as the uncanniness of the cells: living fragments of an absent human body.



Light microscopy images of Saos-2 cells with documented changes in morphology due to altered environmental conditions. Left image includes a super-imposed image of 'Alice', imagined from the basic overview of the original donor as listed on the ATCC website.

78 IMPRESSIONS OF A SINGLE OBJECT

78 Impressions of a Single Object consists of 78 plaster impressions of a bone-like sculptural form. This sculptural component was designed to slot into two larger structures forming a large semi-organic sculpture reminiscent of a human form. The centre sculpture was removed and pressed into plaster moulds, creating 78 individual impressions of the object.

The work relates to the repetitive process of passaging (splitting) Alice's Saos-2 cells, during routine cell maintenance, and the transformations that arose over time. The number 78 corresponds to the number of passages Alice's bone cancer cells underwent during the first six months of working at IHBI.

Displayed on the wall in a scattered pattern, the impressions resemble cellular formations. The individual impressions are also reminiscent of 'fossils', linking to

notions of 'previous states' and evolution and the carrying over of information from the past into the present.

Although the impressions are of a single object, they are all unique as the resulting shape was determined by the angle of the object during the impression process, the amount of pressure applied and the dryness of the plaster. Over time the original object also changed, due to plaster adhering to its surface. In this way, the work responds to the notion of continual transformation and 'becoming' based on interaction with the world.



The work also highlights the impossibility of gaining an absolute and singular understanding of any object, organism or structure, as the results we obtain are largely dependent on the specific methods employed. Furthermore, while it may be possible to reconstruct the original bone form from the impressions, it would be impossible understand how the form 'fitted into' the other structures and what the overall sculptural figure constituted.

78 Impressions of a Single Object, 2008
Plaster
Dimensions variable
Installation detail

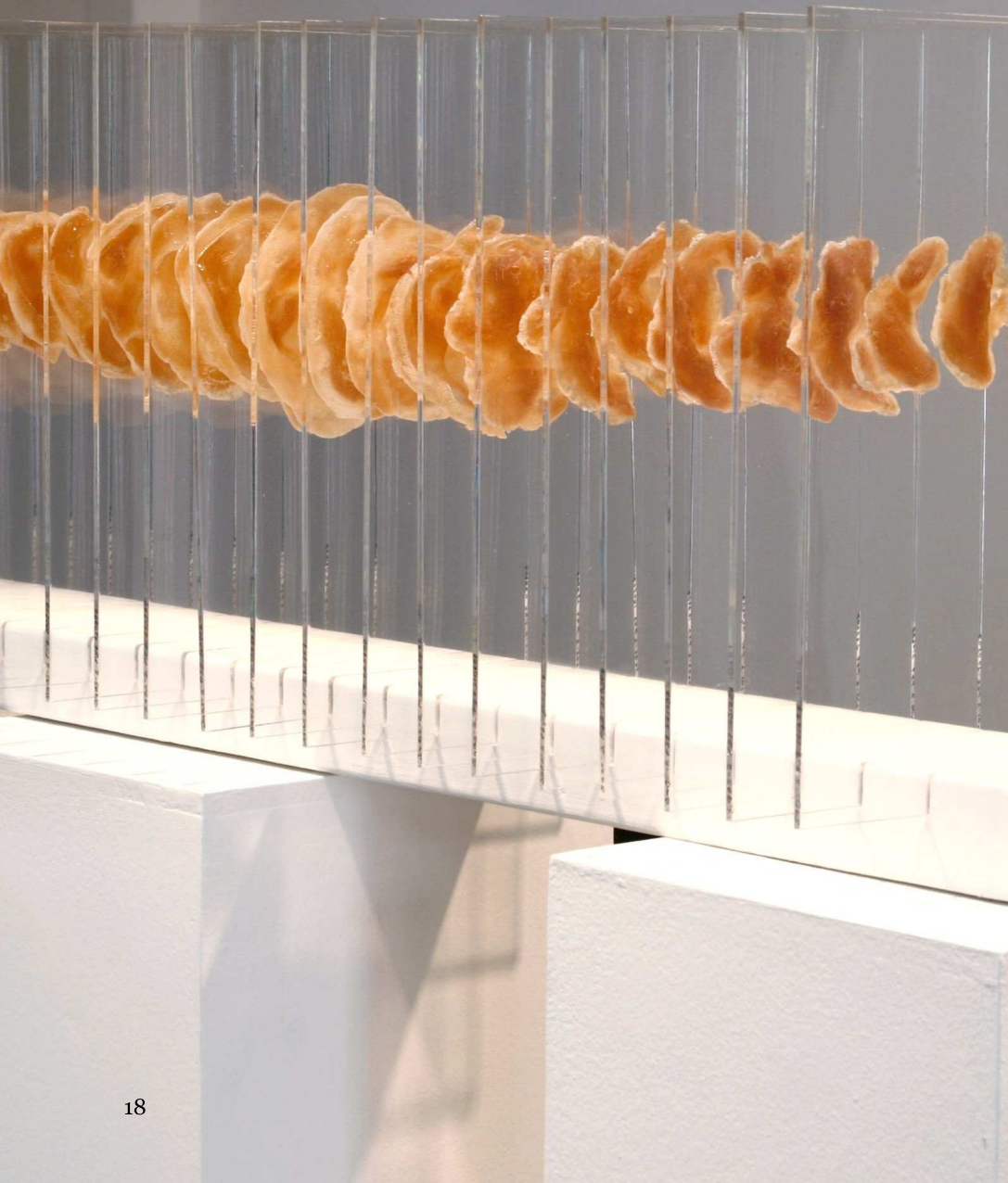




The Absence of Alice, 2008
Installation view: *Fragments of a Body in the Process of Becoming Other*
and *78 Impressions of a Single Object*
QUT Visual Art Gallery, Kelvin Grove



78 Impressions of a Single Object, 2008
Plaster
Dimensions variable
Installation detail



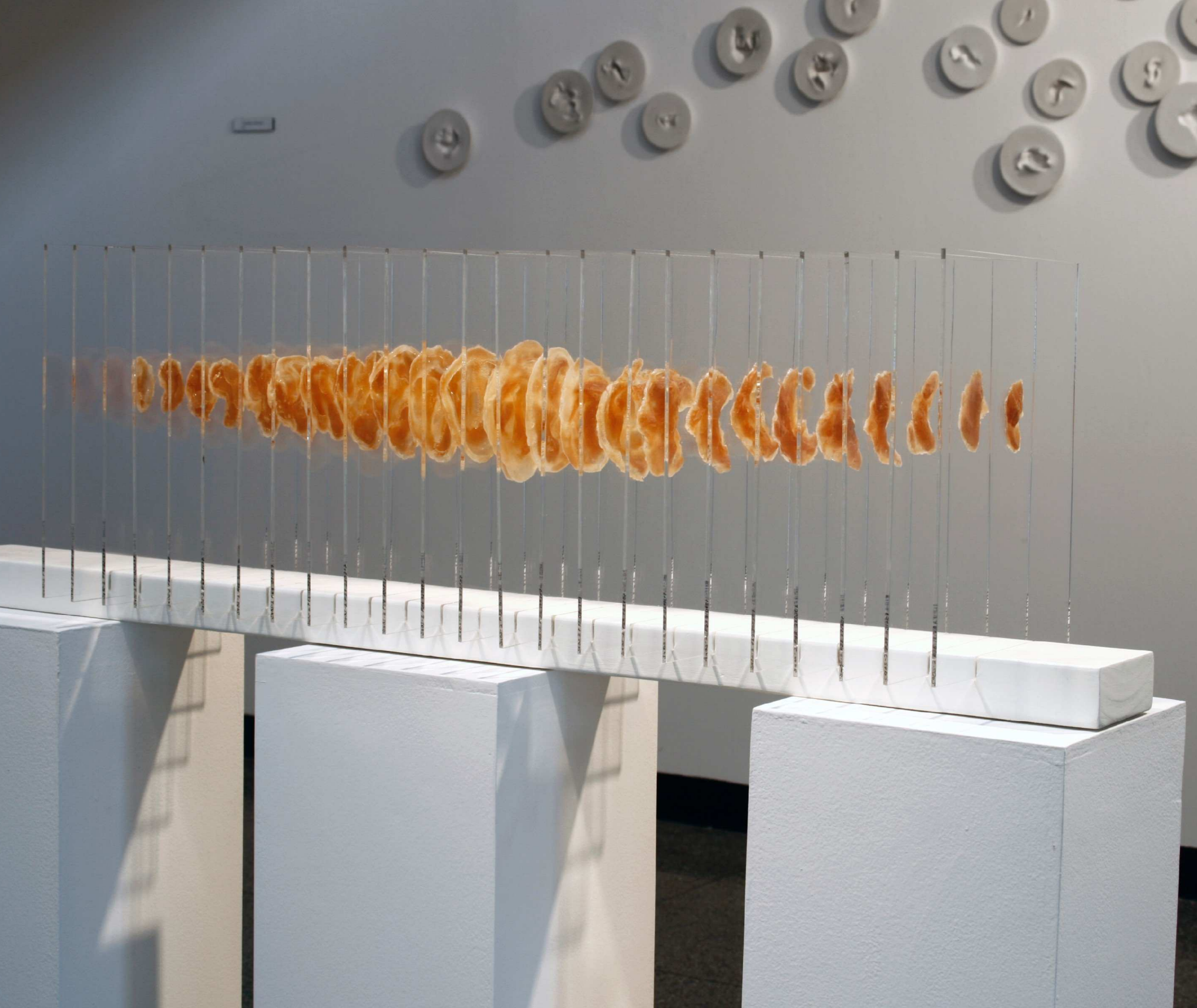
FRAGMENTS OF A BODY IN THE PROCESS OF BECOMING OTHER

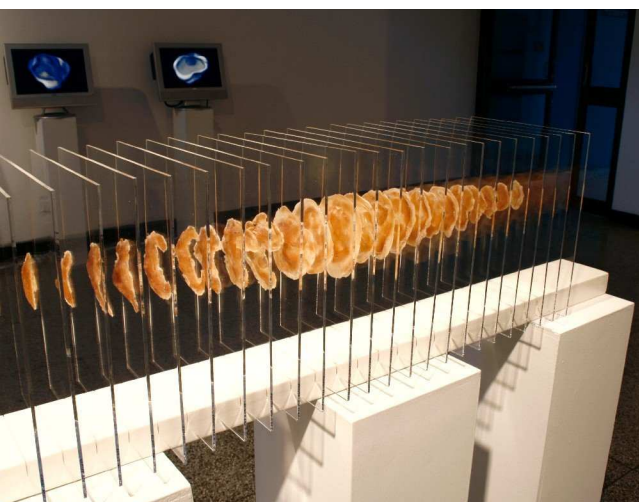
Fragments of a Body in the Process of Becoming Other consists of a series of casts made from liquid latex incorporating cell palettes of Alice's Saos-2 which were collected during the 78 passage stages. The casts were created from the original plaster impressions displayed on the wall. These latex casts were displayed on a series of Perspex sheets in an order relating to the passage number of the cells. The passage number and date was inscribed on the side of the Perspex panels.

Displayed in this manner the work references biological sample and display slides and the way in which development is mapped by fixing particular moments in time. This work also responds to the notion of continual change and the display panel has deliberately been left uneven to illustrate that this process is ongoing.



Fragments of a Body in the Process of Becoming Other, 2008
Latex containing Saos-2 cells, Perspex, wood, enamel
780mm x 270mm
Installation detail (above)
Installation view (previous page)
QUT Visual Art Gallery, Kelvin Grove





Fragments of a Body in the Process of Becoming Other, 2008
Latex containing Saos-2 cells, Perspex, wood, enamel
Installation views & detail
QUT Visual Art Gallery, Kelvin Grove



BONE BREATH

The work Bone Breath consists of a three-panel video animation installation. The animation is composed of digital scans of the original bone-like sculptural form from which the plaster impressions were derived. Set to the sound of a young girl's breath, these sculptural forms mutate from one form into another with each in-and ex-halation. Although each of the three videos is unique, they 'breathe' in unison.

This work comments on the strangeness of the cells, which though originally stemming from a single donor, are used in laboratories all over the world and are most likely undergoing dramatic changes due to the different studies they are being used for, and thus different environmental conditions, they are exposed to.



Bone Breath, 2008
Video animation
Installation view with *Fragments of a Body in the Process of Becoming Other*
(above) and video stills (right)
QUT Visual Art Gallery, Kelvin Grove



HAIRY BONE BALLS

Hairy Bone Balls consists of three clay sculptures incorporating liquid latex mixed with Saos-2 cells, human and synthetic hair. The sculptures have an organic form reminiscent of human bone structures, thus referencing the bone cancer origin of the Saos-2 cell line. The inclusion of hair provides an abject visual link with the original human donor. Both human and synthetic hair was used to comment on the blurring of boundaries between the distinctions natural/unnatural in contemporary biotechnologies.

Hairy Bone Balls comments on the uncanny nature of the cells as alien organisms that exist in a strange relationship with an absent human body.



Hairy Bone Balls, 2008
Latex containing Saos-2 cells, human and synthetic hair, ceramic, acrylic
Installation detail (above)
Installation view (overleaf)
QUT Visual Art Gallery, Kelvin Grove

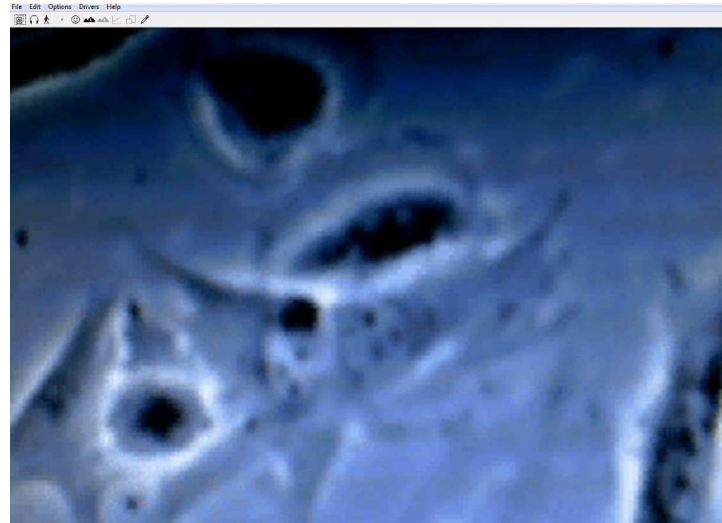


IN PROCESS

The video installation *In Process* consists of three video animations incorporating scans of the latex/Saos-2 cell casts displayed on the Perspex sheets, as well as the original bone-like sculpture used to create the plaster impressions.

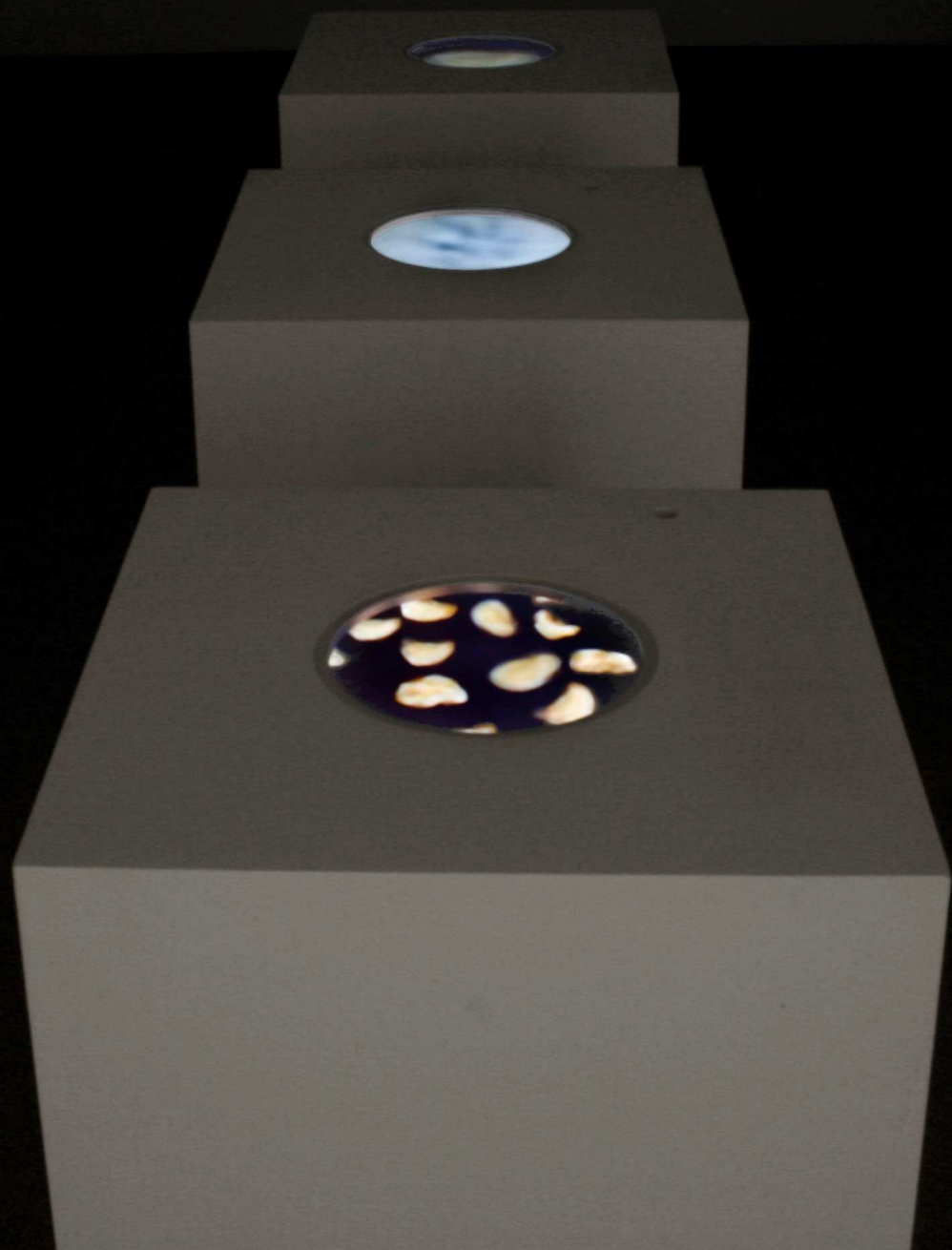
The two outer videos illustrate the process of mutation from a single bone-like object into multiple abject, continually changing fleshy cell forms. Time-lapse footage of the Saos-2 cells has also been incorporated, linking this process of transformation to the cells. The central video contains footage of mitosis (cell division) gesturing towards the notion that each cell division has the potential for transformation or mutation.

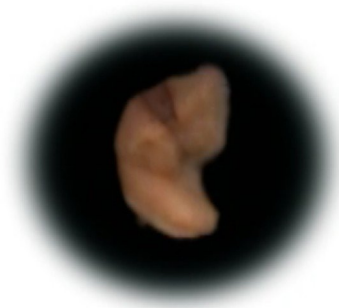
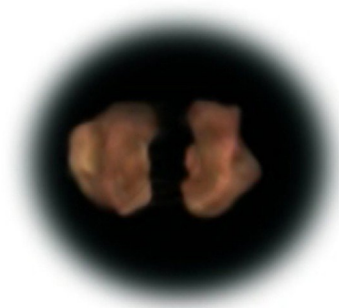
The accompanying multi-layer audio component was created using time-lapse video footage of Alice's cells fed through 'The Voice' software designed to audiolise images for the vision impaired. In this way, *In Process* also comments on the limitation of scientific methods, suggesting that all translations must be understood as abstractions that on some level transform, rather than simply reveal, the phenomena they describe.



Saos-2 cell timelapse footage in video-to-audio conversion program (above)

In Process, 2008
Video animation
Installation view and series of animation stills (overleaf)
QUT Visual Art Gallery, Kelvin Grove





THE ABSENCE OF ALICE

alice ants and the armyworm

THE ABSENCE OF ALICE: alice ants and the armyworm

The second instance of *The Absence of Alice*, subtitled *Alice Ants and the Armyworm*, was exhibited in the Tom Heath Space at the QUT Art Museum in August 2008. The works showcased in this exhibition functioned as an extension of the previous presentation of *The Absence of Alice*. While, the first exhibition commented largely on the uncanniness and transformative capabilities of Alice's Saos-2 cells, the creative works developed for *The Absence of Alice: Alice Ants and the Armyworm* commented not only on the continual becoming 'Other' of Alice's cells, but also linked with the creative process, and the way in which from the original exploration of Alice, the creative works rippled outwards, making new connections, slowly becoming something else.

Other works, most notably *Untitled Insects* link to the experience of co-culturing Saos-2 cells with SF9 insect cells (cells derived from the Fall Armyworm *Spodoptera frugiperda*, the larval stage of the Armyworm moth). When co-cultured, the Saos-2 cells were able to survive in environmental conditions substantially different to their 'normal' laboratory environment. For example they were able to survive, grown only with insect cell media (without Fetal Bovine

Serum, usually required for human cell culture). They were also able to live in an insect cell incubator which is set at 28°C, substantially different from the human/animal incubators which are set at 37°C with 5% carbon dioxide atmosphere (designed to replicate the conditions inside a human body). Grown in these conditions the Saos-2 cells changed their shape. They exhibited enlarged nuclei and became increasingly similar in appearance to the ball-shaped insect cells. The cells were also only able to survive when co-cultured with the SF9 insect cells. Saos-2 cells grown in insect media without the SF9 cells died after 3 days. As such, the human cells illustrate an amazing capacity to transform.





The Absence of Alice: Alice Ants and the Armyworm, 2008 (above)
Exhibition view
QUT Art Museum, Gardens Point



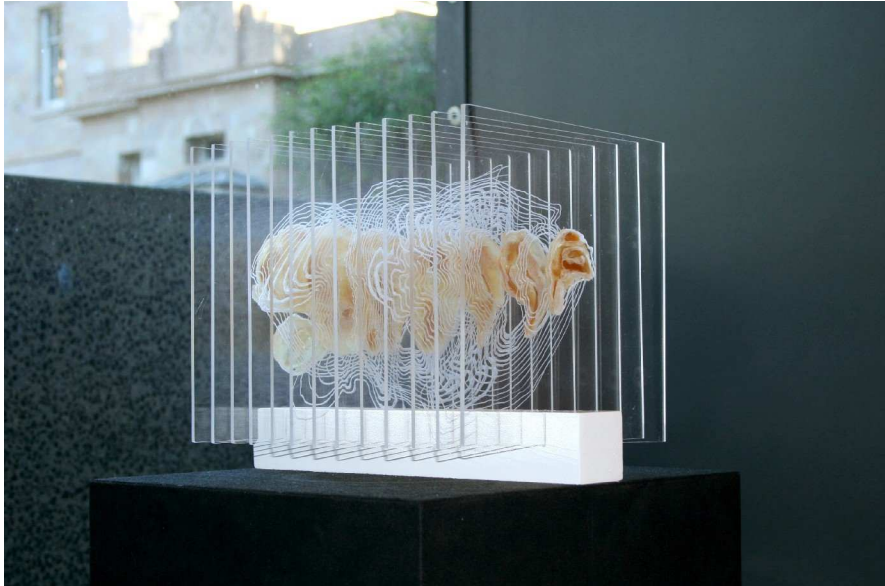
TRANSITION PIECE #1

Transition Piece #1 consists of a latex and enamel work that developed from the long-term mapping of movement. The patterns emerged by tracing around previous lines and responding and exaggerating the slippages and errors that occurred during this process. This work explores notions of movement and change and the possibilities that emerge over time in response to particular points of origin, illustrating that patterns of transformation are linked to previous actions and events, but are also directed by encounters with the accidental – thus, patterns of becoming cannot be determined from the outset.





Transition Piece#1, 2008
Latex mixed with Saos-2 cells, acrylic and enamel on canvas
Installation view (above)
Installation view and detail (previous page)
QUT Art Museum, Gardens Point



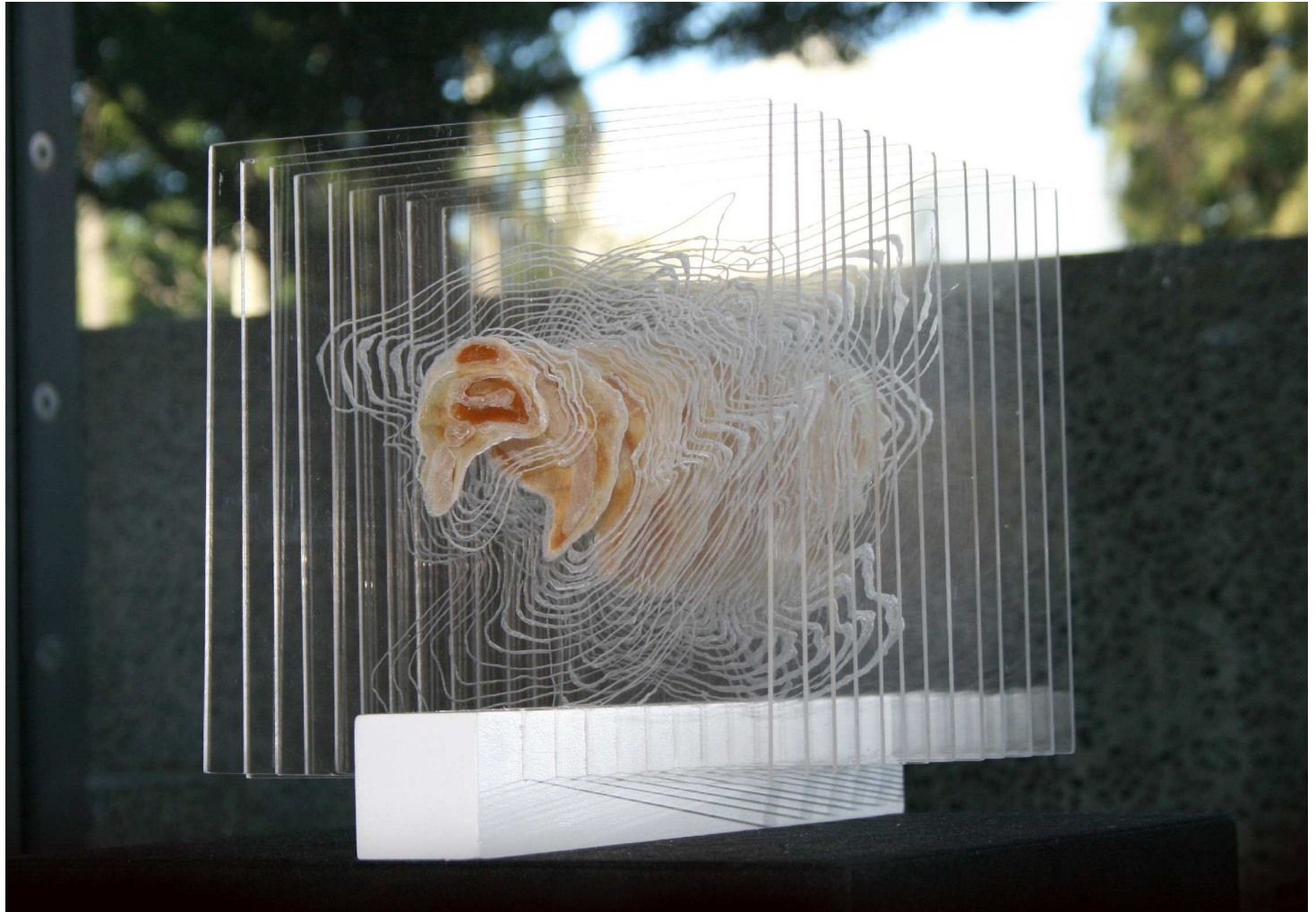
TRANSITION PIECE #2

Transition Piece #2 is a series of Perspex panels incorporating latex mixed with Saos-2 cell palettes. This work links to the preceding work *Fragments of a Body in the Process of Becoming Other*, which commented on the becoming 'other' of the original cell line.

This work, although linked to the concept of transformation, also aims to illustrate a rippling outward of the original work into a new area and context. The ripples are formed by tracing around the latex shape, thus further linking to the concept of becoming expressed in *Transition Piece #1*.



Transition Piece#2, 2008
Latex mixed with Saos-2 cells, Perspex, wood, enamel
Installation view and detail
QUT Art Museum, Gardens

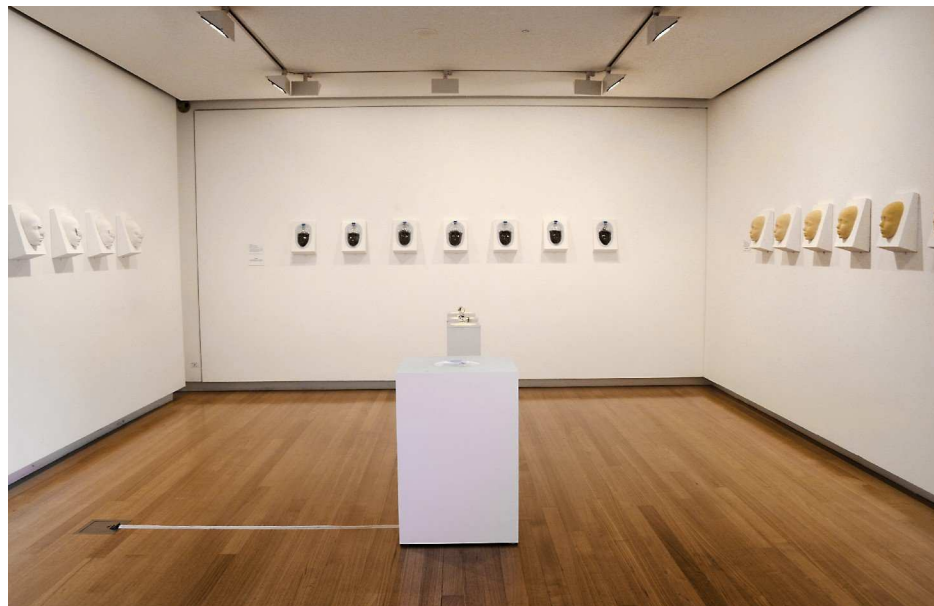


Transition Piece#2, 2008
Latex mixed with Saos-2 cells, Perspex, wood, enamel
Installation view
QUT Art Museum, Gardens Point

DEATH MASKS

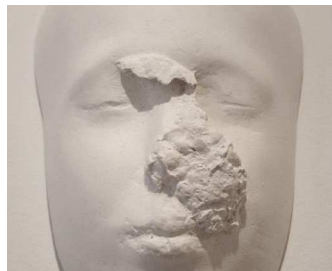
The work *Death Masks* consist of a series of facial casts produced from the imprint of an 11-year old girl's face. These facial impressions reference the original Saos-2 cell donor and reflect on notions of death, transformation and interconnection.

Death Masks #1: Alice Becoming consists of a series of degrading plaster casts. These faces were created from a single alginate mould. After each cast was produced the alginate material degraded, resulting in the gradual erasure of facial features and emergence of strange abject blobs. This work comments on the way in which Alice's Saos-2 cells tend to transform and mutate over generations, thus becoming 'Other' from the original cell line from which they were derived. The work also links to the development of the creative work, and the movement of original ideas, which centred on 'Alice', into other areas of strange and unknown exploration.



The Absence of Alice: Alice Ants and the Armyworm, 2008
Mixed-media installation
Installation view (above)
QUT Art Museum, Gardens Point

Death Masks #1: Alice Becoming, 2008
Plaster, MDF
Installation view and detail (overleaf)





DEATH MASKS#2 : MUTABLE DEATH MASKS

Death Masks #2 - Mutable Death Masks comments on the ability of the Saos-2 cells to transform and adapt in response to environmental changes and stressors, but also aims to illustrate that the connection to the original cell donor always remains a strong presence.

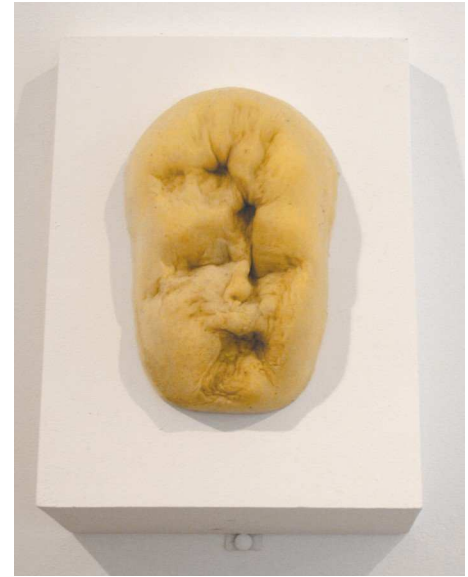
Mutable Death Masks, 2008
Installation view
QUT Art Museum, Gardens Point



Luka (Alice's facial model) engaging with the work (above)
Squished faces (below and left)



During exhibition gallery viewers were encouraged to 'squash' the heads and watch as the faces gradually reform. Over time they will degrade as the foam retains a 'memory' of the previous interactions, illustrating that change often involves a build up of small events.





DEATH MASKS #3: ALICE ANTS

Death Masks #3 : Alice Ants comments on the way in which the story of Alice and her cells form part of a rhizome with the rest of the world. Ants were chosen as they form a 'living rhizome', and have similar characteristics to cells. Both cells and ants for example, respond to chemical signals, behavioural patterns of other cells/ants and environmental cues and demonstrate an amazing ability to self-organise through what seems like 'collective intelligence'. In this way, both ants and cells can be seen as complex systems with emergent properties: Ants stem from a queen in the same way that cells generally stem from a single organism (in this case Alice). Both cells and ants can be seen as part of larger super-organisms, which again connect outwards forming part of the ecosystem.

The live ants displayed in the plastic *Death Masks* have all consumed the Saos-2 cell/sugar mixture. They are effectively 'Alice ants', linking this work to the video component *Ants Eating Alice*.



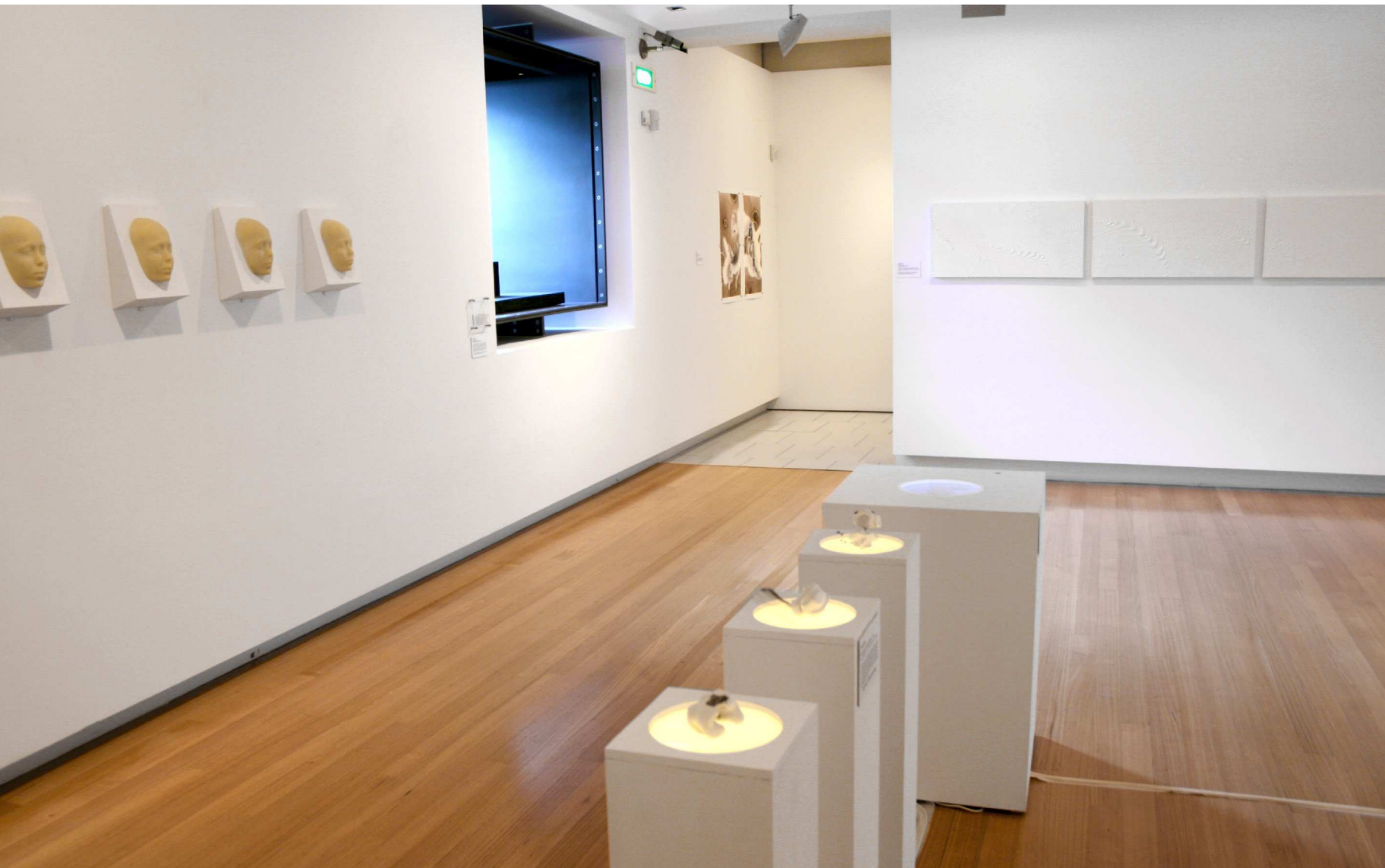


Ants Eating Alice, 2008
Digital video
Video installation (left)
Video animation (right)
QUT Art Museum, Gardens Point

Death Masks #3: Alice Ants, 2008
Live ant colonies, soil, vacuum formed plastic, MDF
Installation view (previous page)
QUT Art Museum, Gardens Point

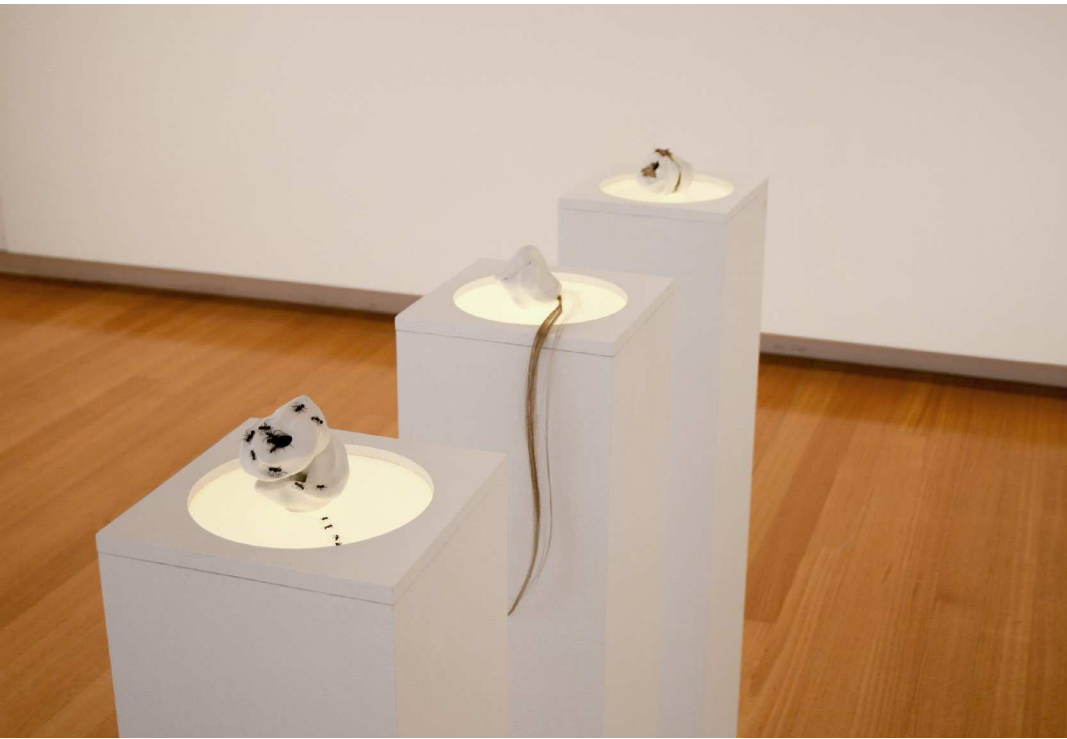
ANTS EATING ALICE

As the title suggests, *Ants Eating Alice* consists of a digital video work showing ants eating a mixture of Alice's Saos-2 cells and raw sugar syrup. In the centre of the cell/sugar solution time-lapse footage of the Saos-2 cells has been superimposed to create an immediate visual link to the cells. This work links to *Death Masks #3: Alice Ants*.



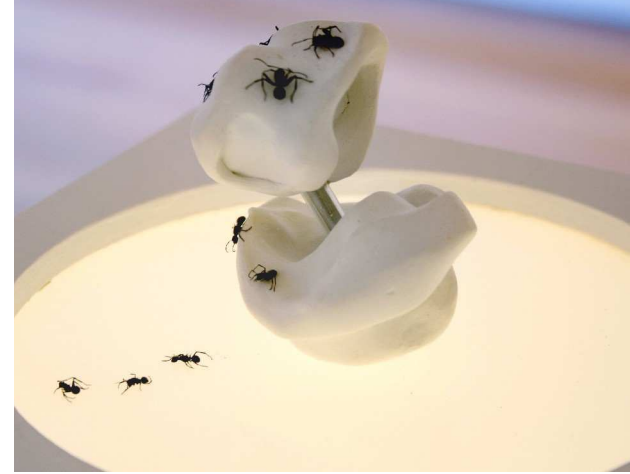
The Absence of Alice: Alice Ants and the Armyworm, 2008 (above)
Exhibition view (above)
QUT Art Museum, Gardens Point

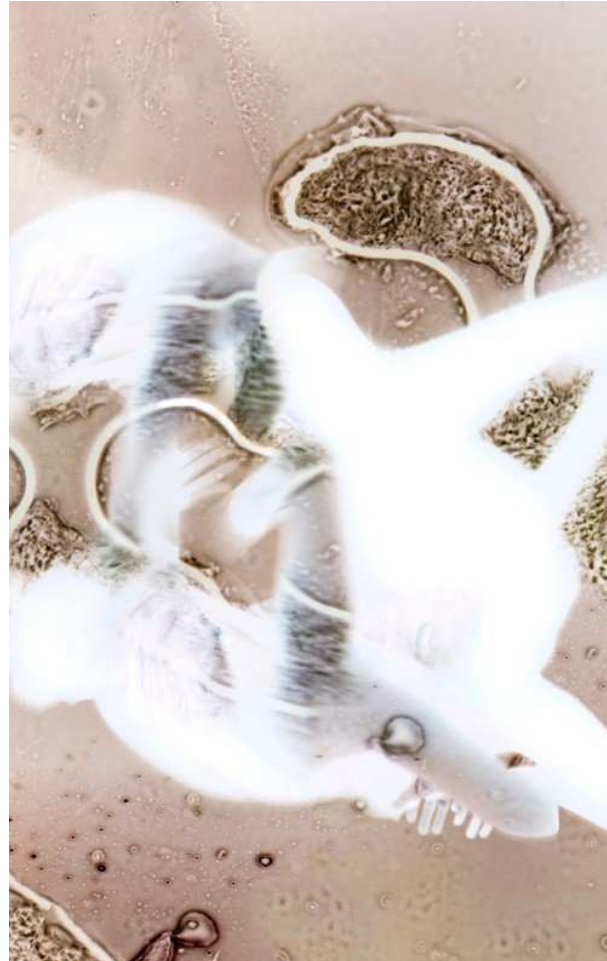
Interlocking Hair and Bug Bone Balls, 2008 (overleaf)
Clay, ants, moths, spider legs, human hair, MDF, Perspex, light
Installation view and detail (overleaf)
QUT Art Museum, Gardens Point



INTERLOCKING HAIR AND BUG BONE BALLS

Displayed in conjunction with *Ants Eating Alice*, *Interlocking Hair and Bug Bone Balls* consist of three small sculptures made from clay mixed with Alice's Saos-2 cells, latex, human and synthetic hair and insects (moths and ants). The balls relate to the previous work *Hairy Bone Balls* and resemble 'bone eggs' from which ants and moths are emerging. This work comments on the emerging connections between Alice's cells, ants and SF9 insect cells. The moths used within the work have short spider legs, aiming to produce a subtle, unsettling feeling within the viewer.



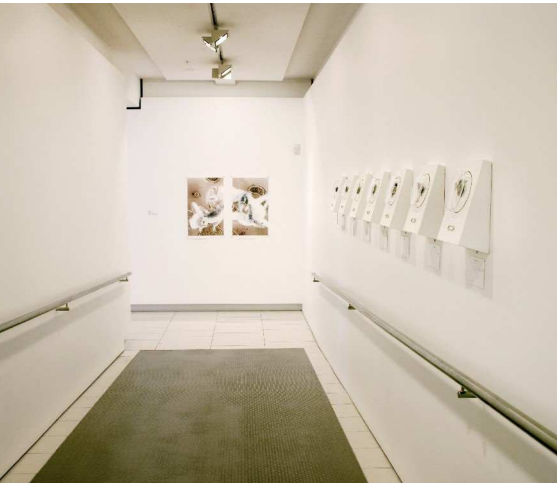


TRANSITION PIECE #3

Transition Piece #3 consists of Alice's scraped Saos-2 cells and SF9 insect cells captured using a light microscope. These cell images were projected onto the moving body of a girl and photographed using a digital camera. This work comments on the transition of the cells from single culture to co-culturing with the insect cells, where the body of the girl, Alice, is illustrated as a dynamic, but ghostly remnant.

Transition Piece #3, 2008
Giclée print on photo rag
Full images (above)
Image detail (overleaf)

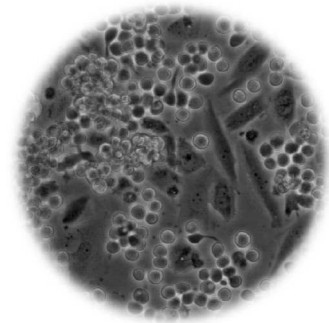




UNTITLED INSECTS

Untitled Insects comments in more detail on the co-culture of Alice's cells with SF9 armyworm cells and consists of seven moth-like insect assemblages. Images of the human and insect cell co-cultures were printed onto the wings and corresponding cell palette samples mixed with white pigment were added to the insects in the form of white dots. The insects only included limited 'human' characteristics (human hair, flesh coloured wing patterns), as the insect cells tended to dominate during the co-culture experiments, and later even started to 'resemble' the insect cells. The moth-like wings of the insects relates to the origin of the SF9 cells as moth larvae, but also links to the idea of transformation.

During the exhibition, viewers were invited to write suggestions for naming these insects on panels below each insect. This strategy was employed to encourage viewers to further engage the work, as well as illustrate the way in which social and cultural connections can be seen in scientific systems of classification and identification.

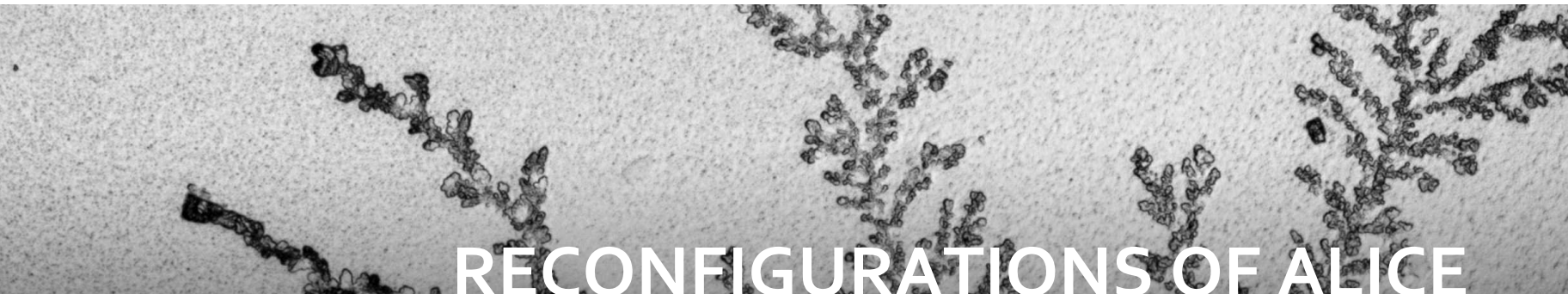


Untitled Insects, 2008

Recycled taxidermy insects, glass, MDF, metal, human and synthetic hair, latex, pigment mixed with Saos-2 and SF9 cell palettes.
QUT Art Museum, Gardens Point

Installation views (above)
SF9 + Saos-2 co-culture (above)
Insect detail (overleaf)





RECONFIGURATIONS OF ALICE

THE ABSENCE OF ALICE: Reconfigurations

Following the first two instances of *The Absence of Alice*, some of the works were re-configured for group shows including *Stendhal Syndrome* at the George Petellin Gallery, which explored medical interventions in contemporary art, and the CIF postgraduate exhibition *Ignite!08*. In both instances, the works from previous shows were adapted and reconfigured to suit the new space and form alternative connections through re-coupling and display. While most of the works were adaptations of existing works, new works, which extended on previous ideas, were also created.

For example, the original work *Transition Piece #1* was explored further through the production of the five-panel work *Five Points of Origin*. Using the same tracing process employed in the production of *Transition Piece #1*, the work comments on the concepts of becoming and possibility, particularly the way in which different patterns can emerge from a single point of origin. As such, the work also connects to the idea of genetic determinism and that while we may have particular genetic pre-dispositions, environmental interaction is also a crucial factor in expression and the development of final 'patterns'.





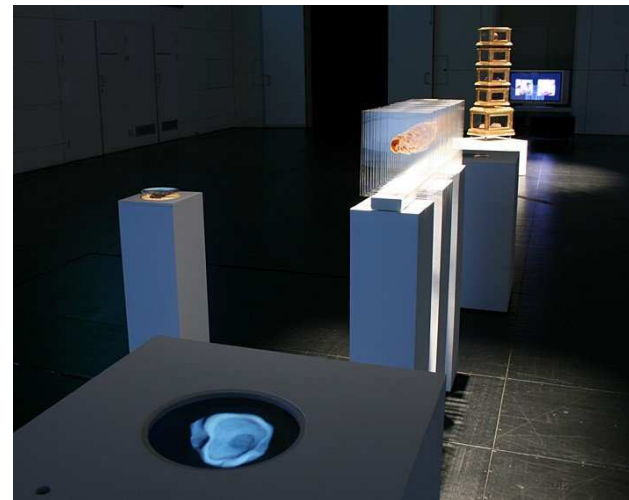
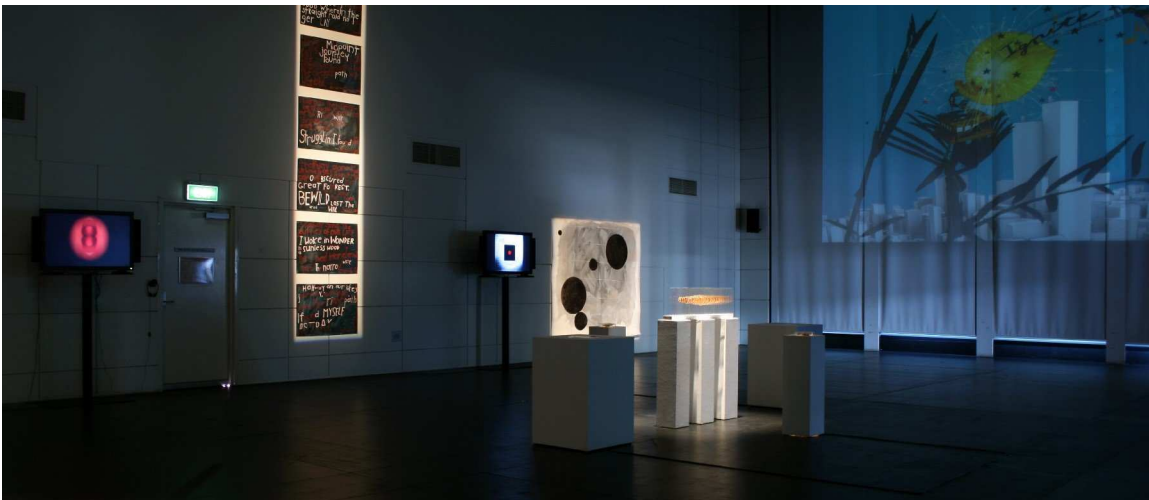
Stendhal Syndrome, 2008
Installation view
George Petellin Gallery, Gold Coast



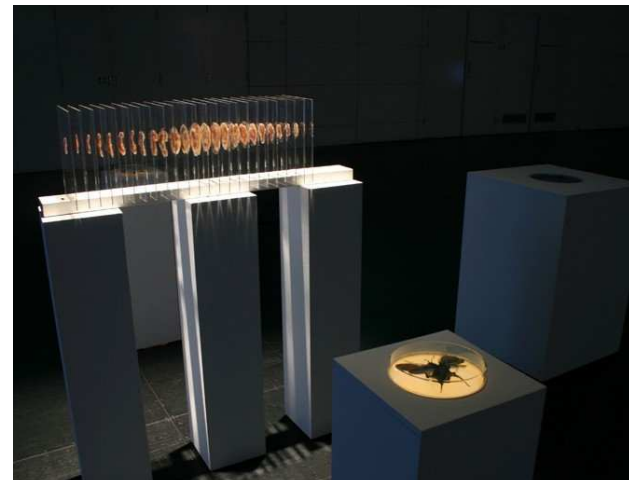
Stendhal Syndrome, 2008
Installation views and detail
George Petellin Gallery
Gold Coast



Mother and Daughter, 2008
Installation detail: *Mother and Daughter*
George Petellin Gallery, Gold Coast



Ignite!08, 2008
CIF Postgraduate Exhibition
Installation view
The Block, QUT CIF Precinct, Kelvin Grove





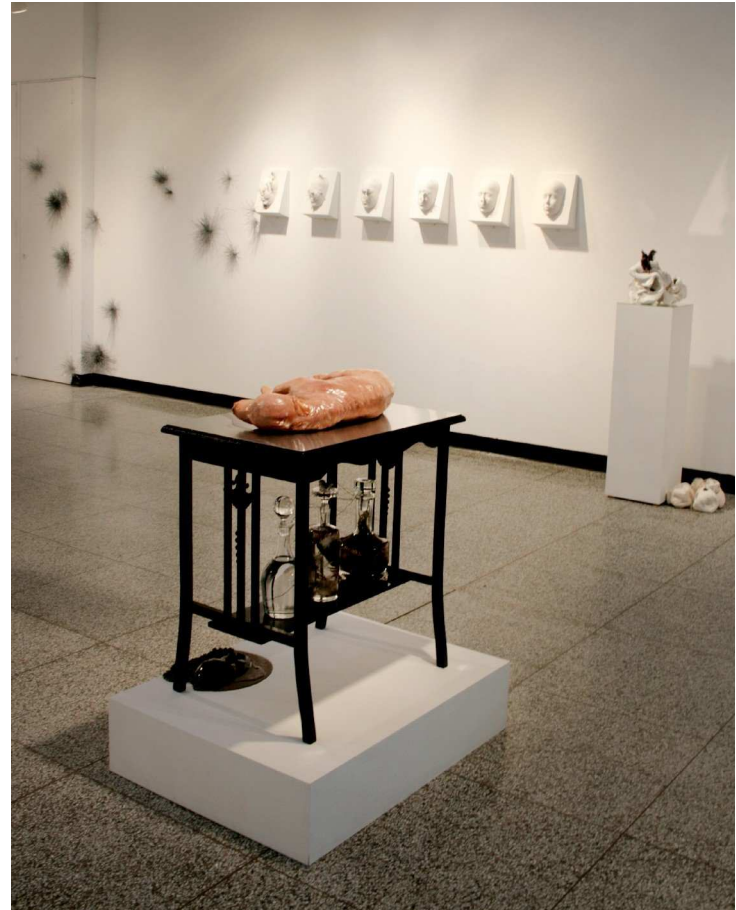
THE ABSENCE OF ALICE

lines of flight and self assemblage

THE ABSENCE OF ALICE: lines of flight and self-assemblage

The third instance of Alice, *The Absence of Alice: Lines of Flight and Self-Assemblage*, was exhibited at the QUT Visual Art Gallery in December 2009. The works produced for this series referenced new laboratory experiences such as the contamination of Alice's cells with fungal spores, and commented on laboratory materials such as Fetal Bovine Serum (FBS) – a protein rich nutrient supplement used in cell culture.

The exhibition also marked a further exploration of the creative process, with particular reference to notions of interconnection, duration and the folding-in of past, present and future and included the use of birds as a symbol for 'creative evolution' and movement towards the unknown.



The Absence of Alice: Lines of Flight and Self-Assemblage, 2009
Installation view
QUT Visual Art Gallery, Kelvin Grove



The Absence of Alice: Lines of Flight and Self-Assemblage, 2009
Installation view (above and overleaf)
QUT Visual Art Gallery, Kelvin Grove





THE MATERIALITY OF ABSENCE IN FIVE POINTS OF ORIGIN

The Materiality of Absence in Five Points of Origin constitutes a revisiting of the original work *Five Points of Origin*. The new configuration includes three panels from the original work and three corresponding mirrored Perspex engravings of the in-between ripples. Through the inclusion of 'absence', the new instance comments on the importance of traces, and 'things now gone' in directing patterns of thought and becoming.



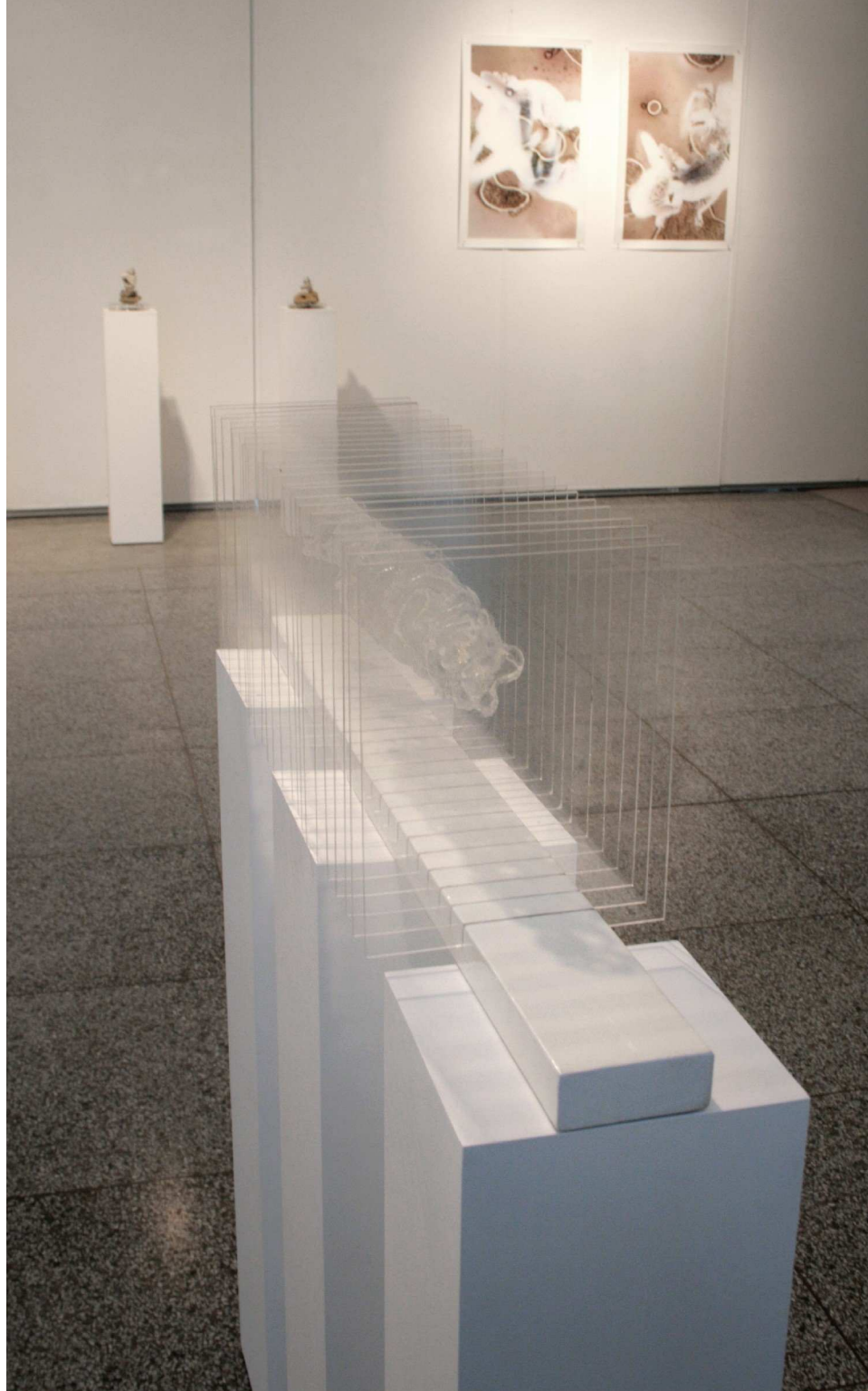
The Materiality of Absence in Five Points of Origin, 2008
Installation view (previous page) and detail (above)
QUT Art Gallery, Kelvin Grove

THE MATERIALITY OF ABSENCE IN FRAGMENTS OF A BODY IN THE PROCESS OF BECOMING OTHER

The Materiality of Absence in Fragments of a Body in the Process of Becoming Other functioned as a reworking of *Fragments of a Body in the Process of Becoming Other*. Panels from the original work were broken during an exhibition. The broken panels were replaced with blank slides. In the unbroken slides, the latex and cell impressions were removed leaving only traces of the original adhesive.

This work reflects on the way in which all things that come before leave traces which continue to manifest physically in the world, and form possibilities for future developments. By creating a new work from the breakage, the work also illustrates that ruptures and errors can also be seen as creative forces.

The Materiality of Absence in Fragments of a Body in the Process of Becoming, 2009
Installation view,
QUT Visual Art Gallery, Kelvin Grove

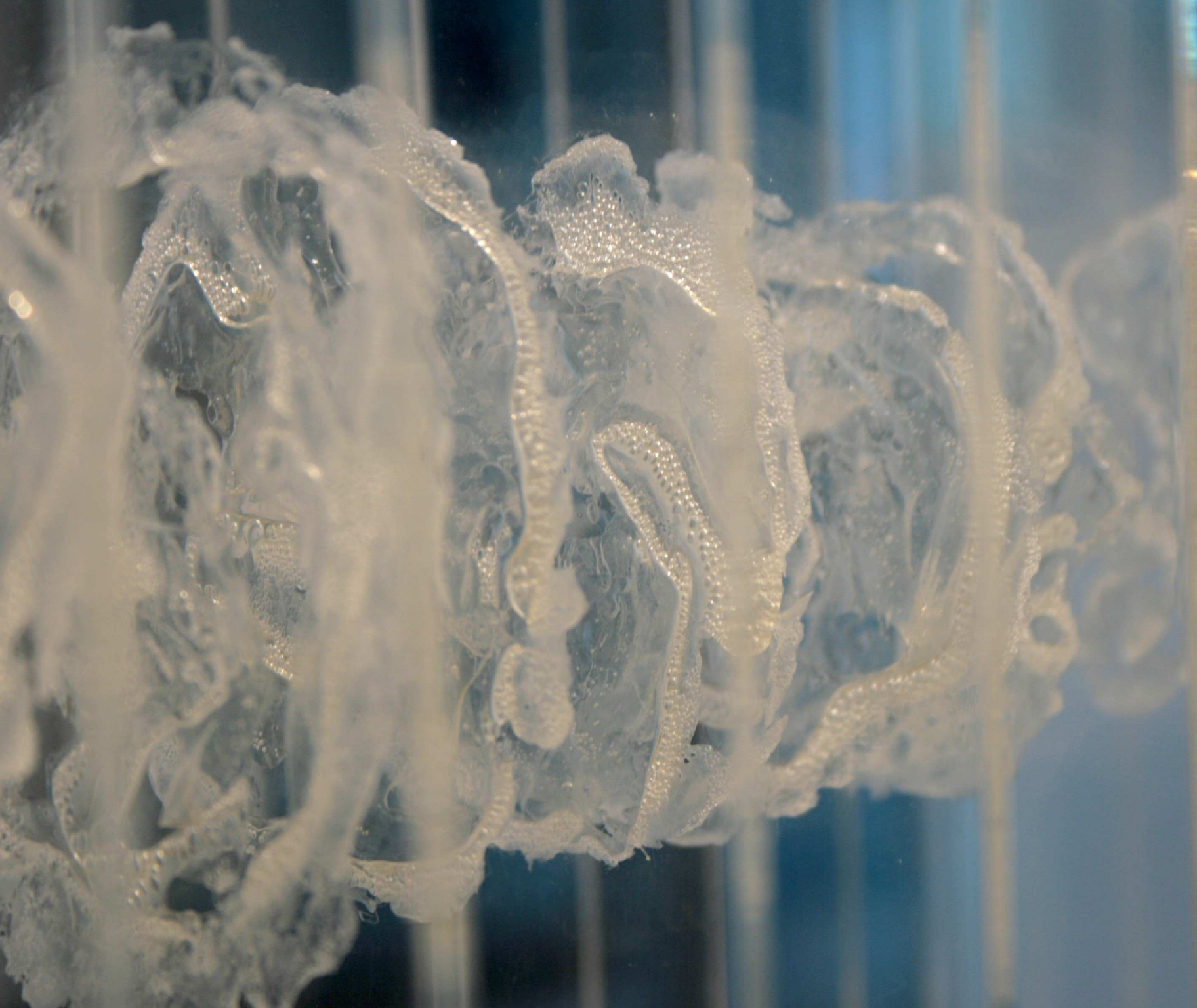




The Materiality of Absence in Fragments of a Body in the Process of Becoming,
and The Materiality of Absence in Five Points of Origin, 2009
Installation view,
QUT Visual Art Gallery, Kelvin Grove



The Materiality of Absence in Fragments of a Body in the Process of Becoming, 2009
Installation view (above) and detail (overleaf)
QUT Visual Art Gallery, Kelvin Grove



BUILDING BLOCK

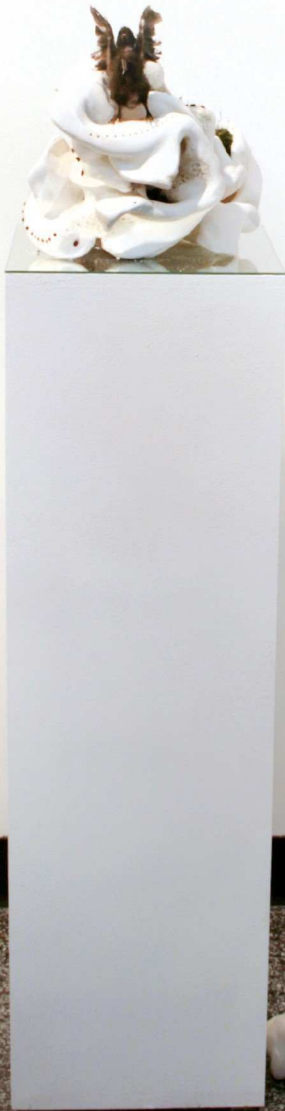
The idea of traces and the carrying-over of information is explored further through the sculptural work *Building Block*. This work incorporates early experiments with clay which formed the foundation of my current sculptural practice, and reflects on the way in which previous actions and encounters set parameters for future becomings. As a literal 'building block', this work is also designed to be continually re-created and exhibited in different combinations and compositions. As such, it exists in a state of perpetual potential.

This configuration incorporates the original *Hairy Bone Balls* displayed in the first instance of *The Absence of Alice*, as well as faux moss and wire 'contamination' linking the work to previous and current investigations. The taxidermy bird within the work represents the role of mutation and openness within creative and biological evolution.

Building Block, 2009

Ceramic, air dry clay, semi-precious stones, MDF, taxidermy, human and synthetic hair, latex and Saos-2 cells, faux moss, mirror, acrylic, stainless steel

Installation view (left) and detail (overleaf)
QUT Visual Art Gallery, Kelvin Grove







THE CONTAMINATION OF ALICE: INSTANCE #1

The Contamination of Alice: Instance #1 is an extension of the *Death Masks* series and comments on the fungal contamination of Alice's Saos-2 cells, during routine cell culture, in 2009. The work references the literal infection of the cells, as well as the notion of creative contamination. Wire clusters which were visually based on microscope images of the original infection infiltrate the gallery space and are evident in many of the individual works.

The Contamination of Alice: Instance #1, 2009

Plaster, MDF, steel wire

Installation view

QUT Gallery, Kelvin Grove



The Contamination of Alice: Instance #1, 2009
Plaster, MDF, Steel Wire
Installation view
QUT Art Gallery, Kelvin Grove

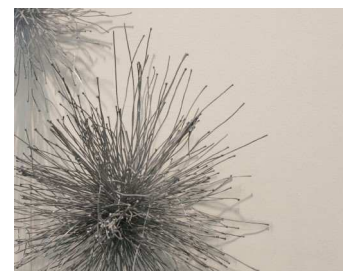
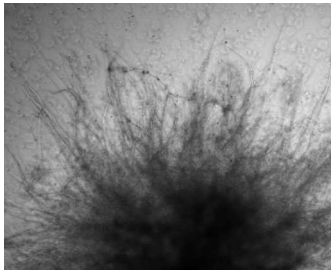


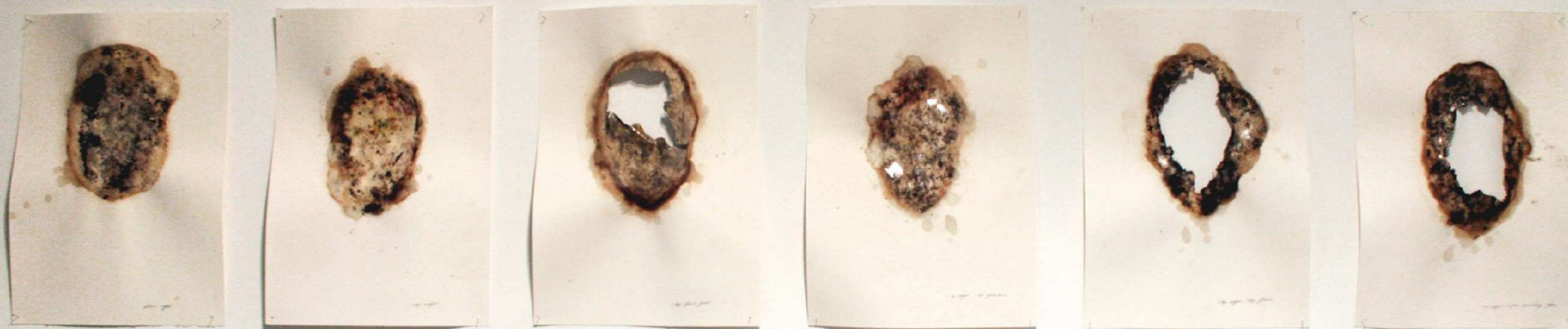
Light microscope image of original fungal infection (top)

The Contamination of Alice: Instance #1, 2009

Installation detail (overleaf - top)

Fungal images and wire reproductions (overleaf - bottom)

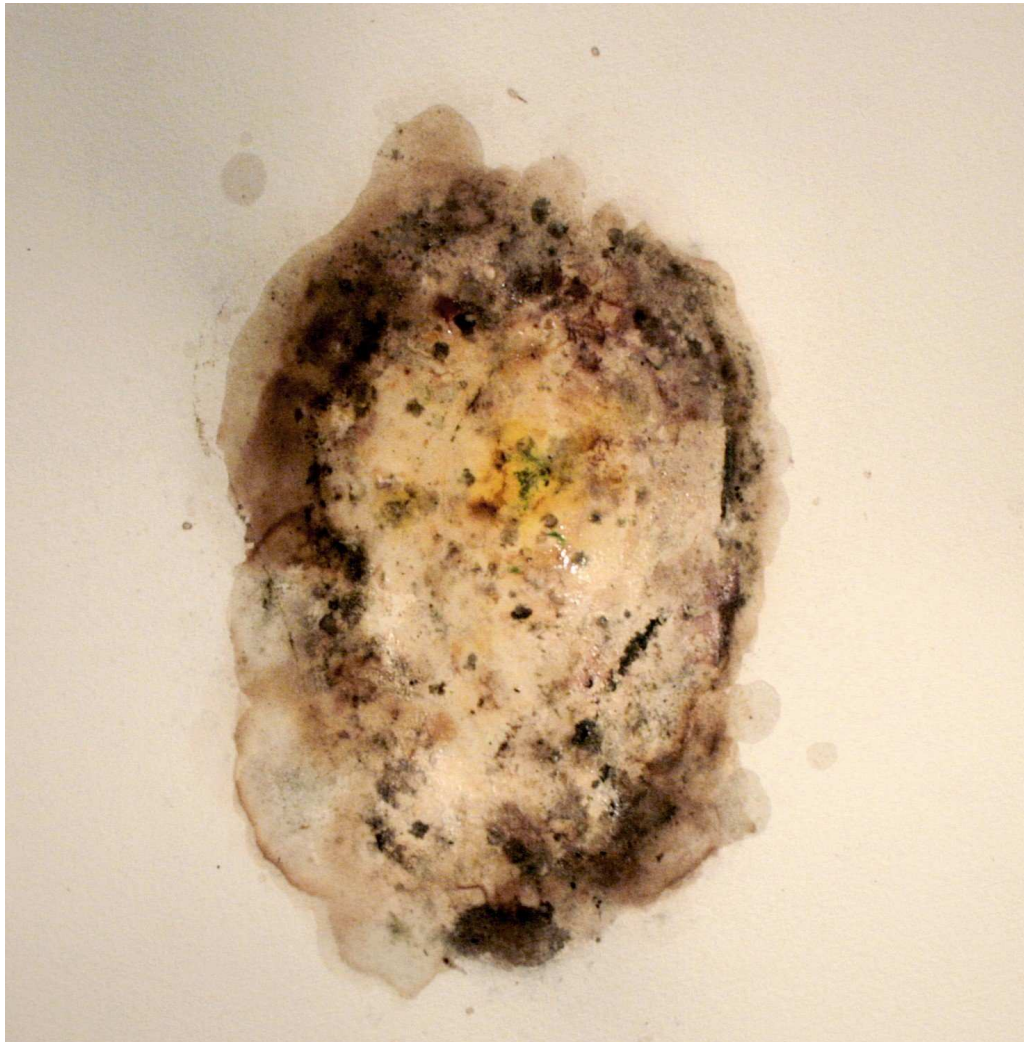




THE CONTAMINATION OF ALICE: INSTANCE #2

The second instance of *The Contamination of Alice* consists of residual traces of bacterial and fungal colonies on watercolour paper. These colonies grew over a period of 6 months on Agar Agar faces of Alice containing different nutrient combinations, which were placed onto the watercolour paper. This work connects to other contamination instances and further explores ideas of absence and the traces that linger.

The Contamination of Alice: Instance #2, 2009
Residue of bacterial and fungal colonies grown on Agar Agar
faces, archival watercolour paper, epoxy
Installation view(above)
Installation detail (overleaf)
QUT Visual Art Art Gallery , Kelvin Grove





THE CONTAMINATION OF ALICE: INSTANCE #3

The third instance of *The Contamination of Alice* consists of actual Agar Agar heads created from the original facial impressions of an 11 year old girl. The Agar Agar was modified with different nutrients, thus allowing for the growth of a variety of different fungal and bacterial colonies, as well as other organisms (microscopic mites and maggots). This work, along with the other works in the contamination series, puts forward the view that life is continual proliferation and becoming, in which even death and decay can be seen as new beginnings and new cycles of life. The work also comments on the way in which environmental affordances have an impact on the potentials of becoming.



The Contamination of Alice: Instance #3, 2009
Agar Agar nutrient faces, Perspex, steel, MDF
Installation view (previous page)
Installation view and detail
QUT Art Gallery, Kelvin Grove

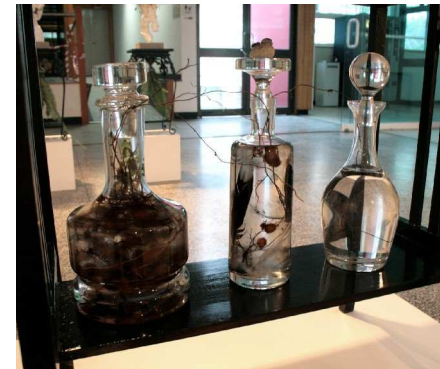


A SHRINE FOR ALGERNON: INSTANCE #1

A Shrine for Algernon consists of a polymer clay sculpture of a fetal calf called Algernon, originally obtained from an abattoir in 2009. Algernon's mother was killed for meat production and his small body was drained of blood for processing into fetal bovine serum (FBS). FBS is a protein rich serum that is used in cell and tissue culture as a nutrient supplement to enable cells in culture to survive. While the idea of draining unborn calves of their blood may sound horrifying, the calves are essentially a bi-product of meat production, and while their blood is harvested to produce serum, their bodies are discarded, deemed unfit for consumption.

This work does not aim to criticise the meat industry or the use of FBS, but rather comments that there are victims at every level of consumption, and that the boundaries between good and bad are always blurred. For example, the practice of slaughtering pregnant cows, and subsequent availability of fetal calf blood, has enabled great advancements in cell and tissue culture and contributed to the development of new medical technologies and treatments for humans and other organisms.





Within the work mock blood drips from the calf to the base of the sculpture into the face of the young girl, Alice. This element references the use of FBS to sustain cells in culture, including Alice's Saos-2 cells.

Beneath Algernon there are three glass vessels. These vessels referenced the flowing over of past into the present and future. The first vessel contains hair and bone balls in reference to the previous exhibition. The second vessel includes feathers, commenting on the idea of creative flight and concepts explored in this instance of *The Absence of Alice*. The third vessel is empty except for small rhizome roots which flow over from the first two vessels.

A Shrine for Algernon: Instance #1, 2009
Wood, glass decanters, MDF, polyurethane, polymer clay, pigment, oil paint, stainless steel, feathers, fishbone fern roots, oil
QUT Visual Art Gallery, Kelvin Grove

Installation views (top)
Detail (overleaf)





The Absence of Alice: Lines of Flight and Self-Assemblage, 2009
Installation view
QUT Visual Art Gallery, Kelvin Grove

SOUVENIRS: BLOOD FLOWERS FOR ALGERNON & ODE TO ALL THE UNBORN AND UNREALISED CHICKEN VOICES IN MY HEAD

The *Souvenirs* series consists of two mixed media snow globe installations. Each snow globe contains preserved organisms and organic materials that link to different concepts explored in the exhibition.

An Ode to all the Unborn and Unrealised Chicken Voices in my Head, for example, consists of a snow globe sculpture containing naturally deceased day old chickens displayed in their original death poses. The installation includes a rhizome nest and live ferns and reflects on the idea of potential and the way in which unrealised ideas and creative acts always leave traces and form roots to further becoming.

*Souvenirs: Ode to All the Unborn and Unrealised Chicken
Voices in my Head and Bloodflowers for Algernon*, 2009
Mixed media snow globe installation
Individual view
QUT Art Gallery, Kelvin Grove





Souvenirs: An Ode to All the Unrealised and Chicken Voices in my Head, 2009
Installation view (above)
Installation detail (overleaf)
QUT Visual Art Gallery, Kelvin Grove



SOUVENIRS: BLOOD FLOWERS FOR ALGERNON

The second snow globe, *Blood Flowers for Algernon*, links to *A Shrine for Algernon*. The globe contains carnations and magnolias, flowers commonly associated with funerals and memorials. The flowers were kept in human and cow blood, which soaked into their petals. The 70% ethanol used in the snow globe - a preservative, a standard sanitiser used in laboratories worldwide - has bleached the blood and other organic pigments. This work responds to the use and exploitation of humans and animals within laboratories and everyday processes of consumption, and comments on the way in which Western culture tends to distance and sanitise products from their origins and methods of production.

Souvenirs: Blood Flowers for Algernon, 2009
Ceramic, polymer clay, fishbone ferns and roots, ethanol, carnations and magnolias with human and cow blood soaked into their petals, glass, plastic, concrete, wood, steel
Individual view (right)
Artwork detail (overleaf)





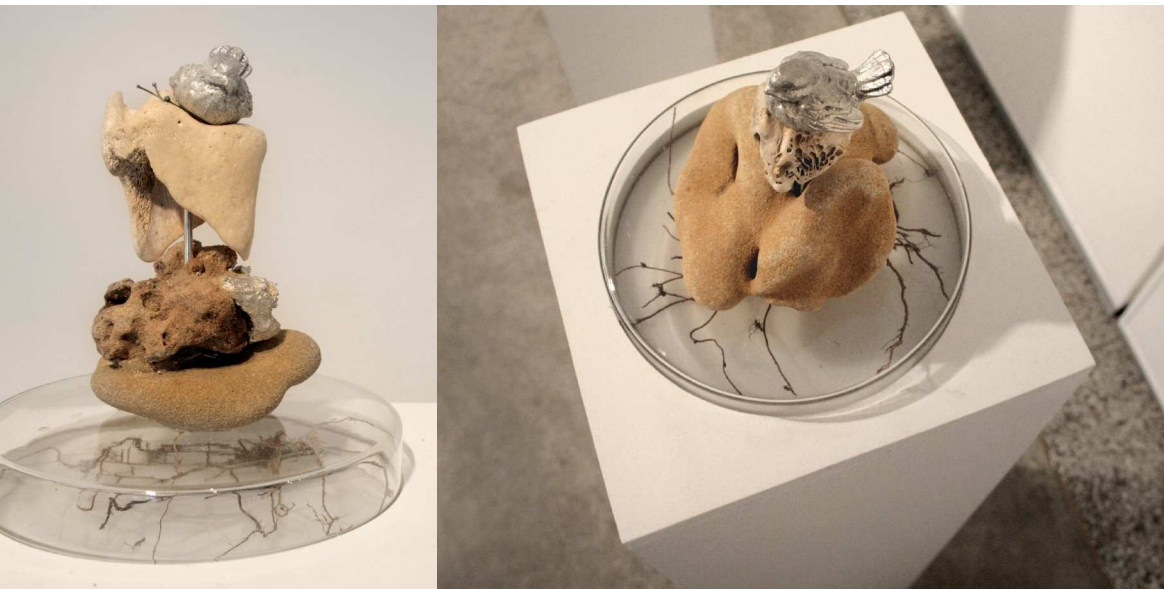
BONE NESTS or THREE INSTANCES OF DURATION AND THE CHANGES THIS ENTAILS

Bone Nests or Three Instances of Duration and the Changes this Entails incorporates naturally water weathered rocks, bones and sand. The works echo the forms observed in *Building Block* and the *Bone Ball* series. This work comments on the importance of duration in processes of becoming and the way in which small events, often imperceptible the present, are instrumental in shaping the patterns of creative and biological evolution.

The birds nesting on the bone, signifies the way in which working with Alice's bone cancer cells formed a 'nest' for future developments within my research and creative practice.

Bone Nests or Three Instances of Duration and the Changes this Entails, 2009
Naturally water weathered rocks, sandstone and bone, glass, fishbone fern roots, pewter
Installation detail
QUT Visual Art Gallery, Kelvin Grove



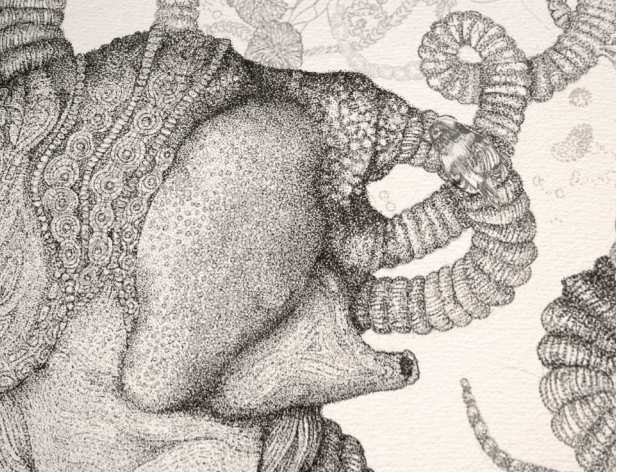


Bone Nests or Three Instances of Duration and the Changes this Entails, 2009
Naturally water weathered rocks, sandstone and bone,
glass, fishbone fern roots, pewter
Installation detail
QUT Visual Art Gallery, Kelvin Grove



ENFOLDINGS AND FLIGHTS UNFINISHED

Enfoldings and Flights Unfinished consists of a drawing composed of thousands of individual dots. Following on from previous concerns, this work also comments on the notion of time, and the gradual build-up of thousands of connections to create larger and more complex elements that remain a continual process of becoming.



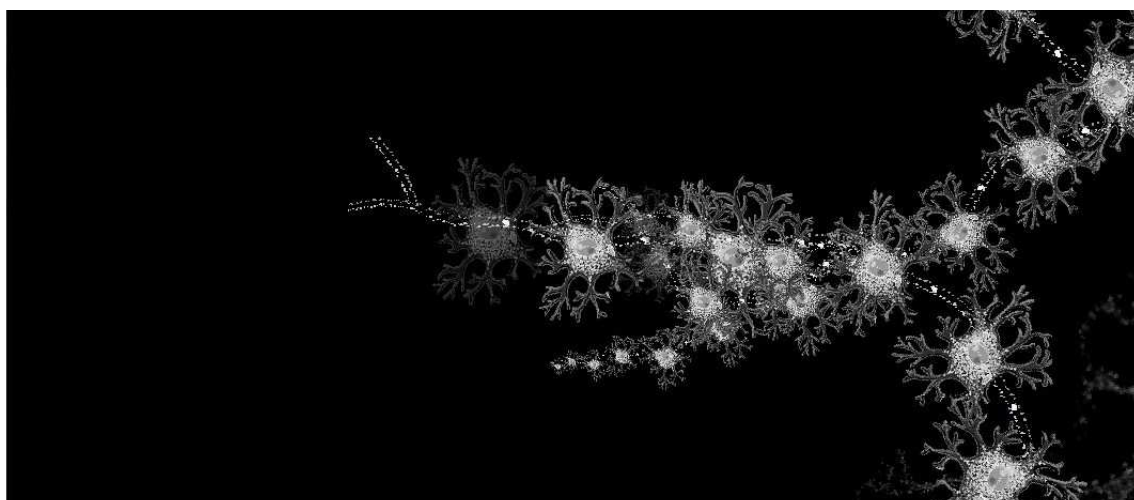
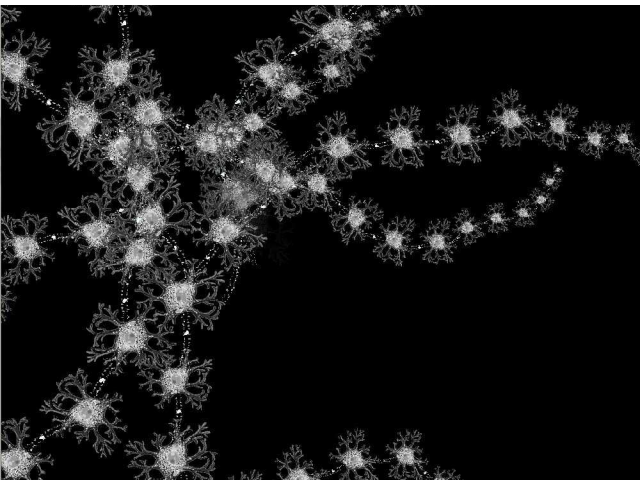
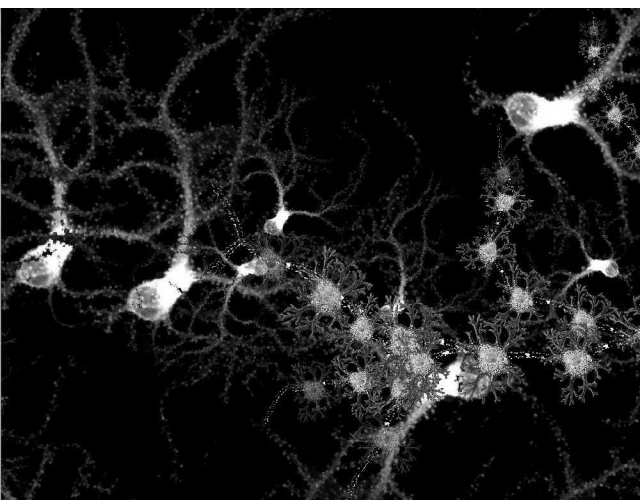
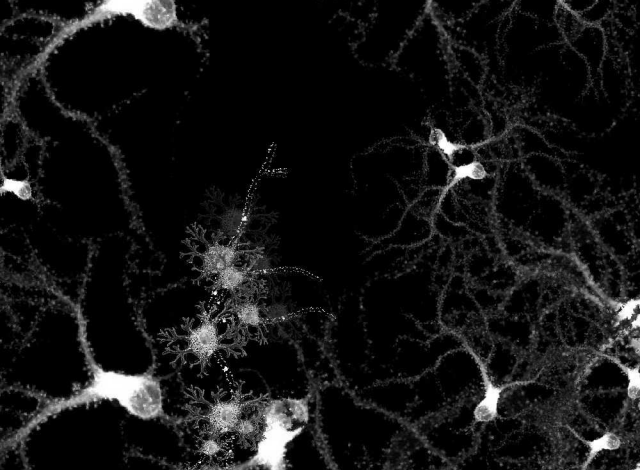
Enfoldings and Flights Unfinished, 2009
Indian ink on archival watercolour paper
Installation view and detail (above)
Large detail (overleaf)
QUT Gallery , Kelvin Grove





PATTERNS IN RANDOMNESS

Patterns in Randomness consists of a generative computer based video installation. This work engages with notions of creative and biological evolution and the way in which both processes are emergent, operating in a close relationship between pattern and randomness, chaos and order. The resulting generative patterns are composed of images of neurons, making connections with the idea of synaptic plasticity, and the way in which brain structure and function is strongly linked to bodily interactions with the world.



Patterns in Randomness, 2009
Generative installation
Installation view (previous page)
Screen shots (this page)



The Absence of Alice: Lines of Flight and Self-Assemblage, 2009
Installation view
QUT Visual Art Gallery, Kelvin Grove



TRANSITIONS AND DEPARTURES

Transitions and Departures is a reworking of the previous image *Transition Piece #3*. Displayed in a different configuration and context the work responds to the notion of departure and the way in which, despite moving into new territories, Alice remains a continual ghostly presence.

Transitions and Departures, 2008 - 2009
Giclée print on photo rag
Full images and detail



THE ABSENCE OF ALICE

and the things that open their wings and are otherwise not noticeable

THE ABSENCE OF ALICE: and the things that open their wings and are otherwise not noticeable

The Absence of Alice and The Things that Open their Wings and are Otherwise not Noticeable, exhibited at The Queensland Academy of Creative Industries (QACI) in July 2010, was the fourth instance within *The Absence of Alice* series. While many of the works developed for this show followed on from previous exhibitions and functioned as a refinement of initial ideas, the exhibition also included new works that commented further on the interconnected cycles of life and death, creation and destruction. The show also marked the introduction of furniture-based installations and museum-style dioramas.

For Alice: Skins and Bones to Hold our Living Nonsense Together, 2010
Installation incorporating video animation, restored antique furniture, insect taxidermy and sculpture
Diorama detail
QACI, Kelvin Grove





As part of the exhibition *The Contamination of Alice: Instance #1* was re-exhibited in an alternative configuration.

The video works *In Process* and *Bone Breath* were also re-worked and re-exhibited as part of the furniture and mixed media installation *For Alice: Skins and Bones to Hold our Living Nonsense Together*.



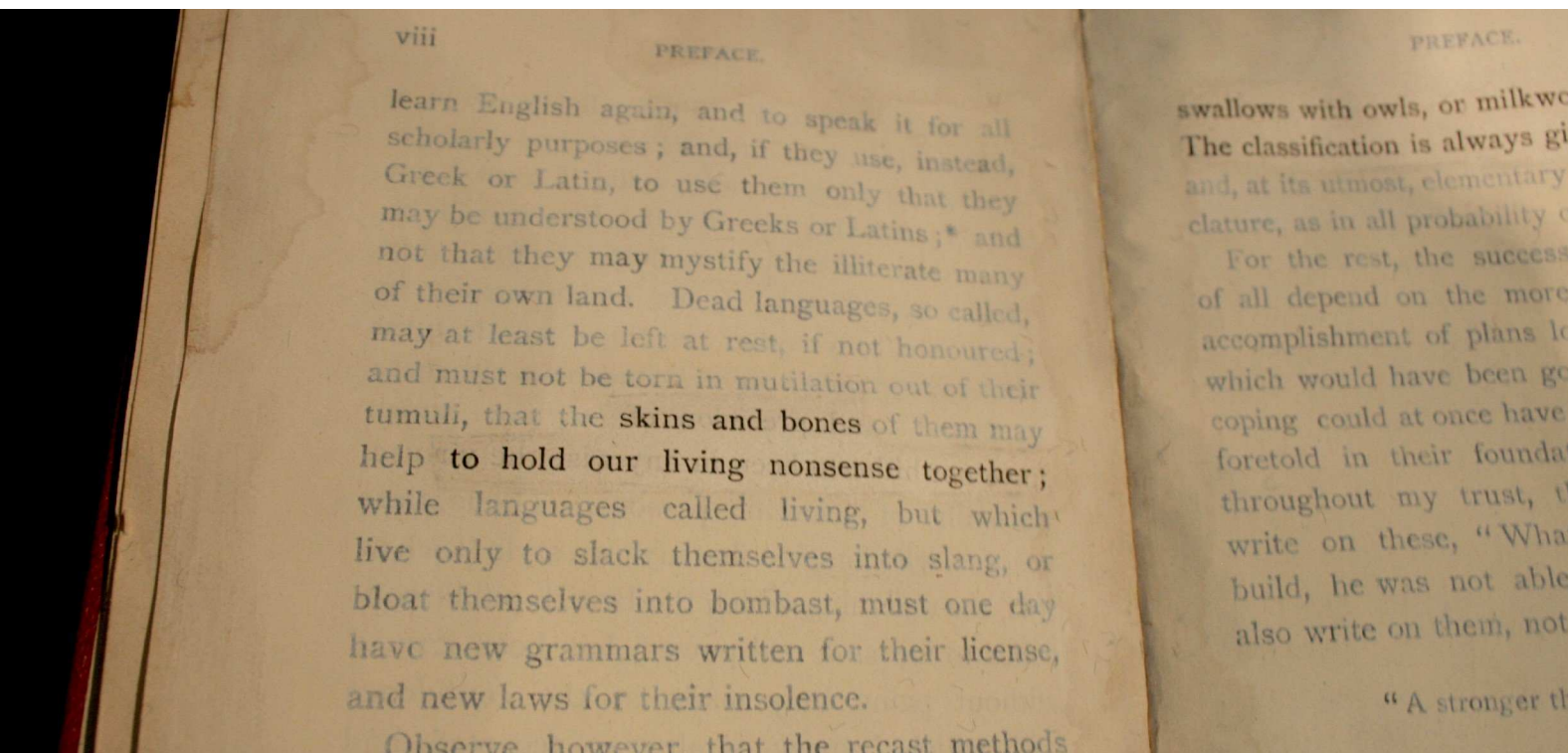
The Absence of Alice: And the Things that Open their Wings and are Otherwise not Noticeable, 2010
Installation view
QACI, Kelvin Grove



FOR ALICE: Skins and Bones to Hold our Living Nonsense Together

For Alice: Skins and Bones to Hold our Living Nonsense Together follows on from exhibitions and engages with the uncanniness of Alice's cells as independent fragments of an absent human body.

For Alice: Skins and Bones to Hold our Living Nonsense Together, 2010
Installation incorporating video animation, restored antique furniture and mixed media
Installation view
QACI, Kelvin Grove



The title of the work was taken from passages isolated from John Ruskin's *Love's Meime* which is displayed in the central area of the table. The passage "...skins and bones to hold our living nonsense together....swallows with owls and milkwarts with violets, the classification is always given as tentative..." refers to the way in which thinking about Alice's cells and the human body – which is composed of so many different interconnected cells and other organisms – is overwhelming, and so complex that we lose all sense of logic, but also that our systems of classification, and making sense of the world is often an arbitrary enterprise, as everything is interconnected and boundaries are always porous.

For Alice: Skins and Bones to Hold our Living Nonsense Together, 2010

Installation incorporating video animation, restored antique furniture and mixed media

Installation view

QACI Kelvin Grove





The work also commented on notions of transformation. This thematic was discernable in the diorama display included as part of the work. This small glass dome incorporated a flower, bone and flesh structure embedded in faux moss and grass. Butterflies with skulls painted on their wings were also incorporated.. The bone/flesh growth provided a link to the origins of Alice's cells as bone cancer cells, while the butterflies made a symbolic connection between cycles of life, death and transformation.

For Alice: Skins and Bones to Hold our Living Nonsense Together, 2010

Installation incorporating video animation, restored antique furniture and mixed media

Installation detail: diorama (left)

Installation detail: teratoma (overleaf)

QACI, Kelvin Grove

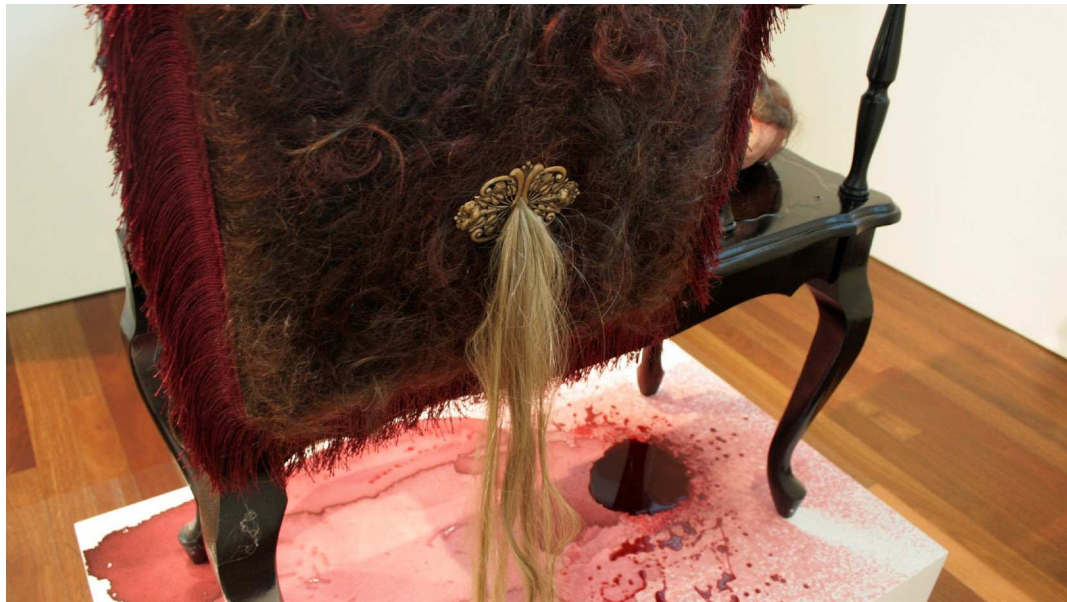
The work also included a teratoma-like structure incorporating human hair and teeth. This element engaged with the uncanniness of Alice's cells and their potential to be genetically regressed into an induced pluripotent stem (iPS) cells, which are capable of differentiating into any cell type, and can form teratomas (terrible tumours) composed of a variety of tissue types.





For the duration of the exhibition opening, the teratoma bled onto the white plinth below, making connections between life and death, harm and benefit.

For Alice: Skins and Bones to Hold our Living Nonsense Together, 2010
Installation incorporating video animation, restored antique furniture and mixed media
Installation view: post-opening with blood residue (left)
Installation detail: pre-opening (above)
Installation views: from behind (overleaf)
QACI, Kelvin Grove







The Absence of Alice: And the Things that Open their Wings and are Otherwise not Noticeable, 2010
Installation view (above and previous page)
QACI, Kelvin Grove



AN ENGAGEMENT WITH DURATION: For Algernon

For the exhibition *A Shrine for Algernon* was reworked and displayed in conjunction with *An Engagement with Duration: For Algernon*, which consists of a restored clock containing the mummified heart of Algernon. The clock was altered to keep 'imaginary time': it speeds up, slows down and chimes at irregular intervals.

An Engagement with Duration: For Algernon and *A Shrine for Algernon: Instance #2*, 2010

Installation view (above)

Restored antique table, rock, animal bones, plastic cows, polymer clay, enamel, stainless steel, epoxy

Detail: *An Engagement with Duration* (overleaf)

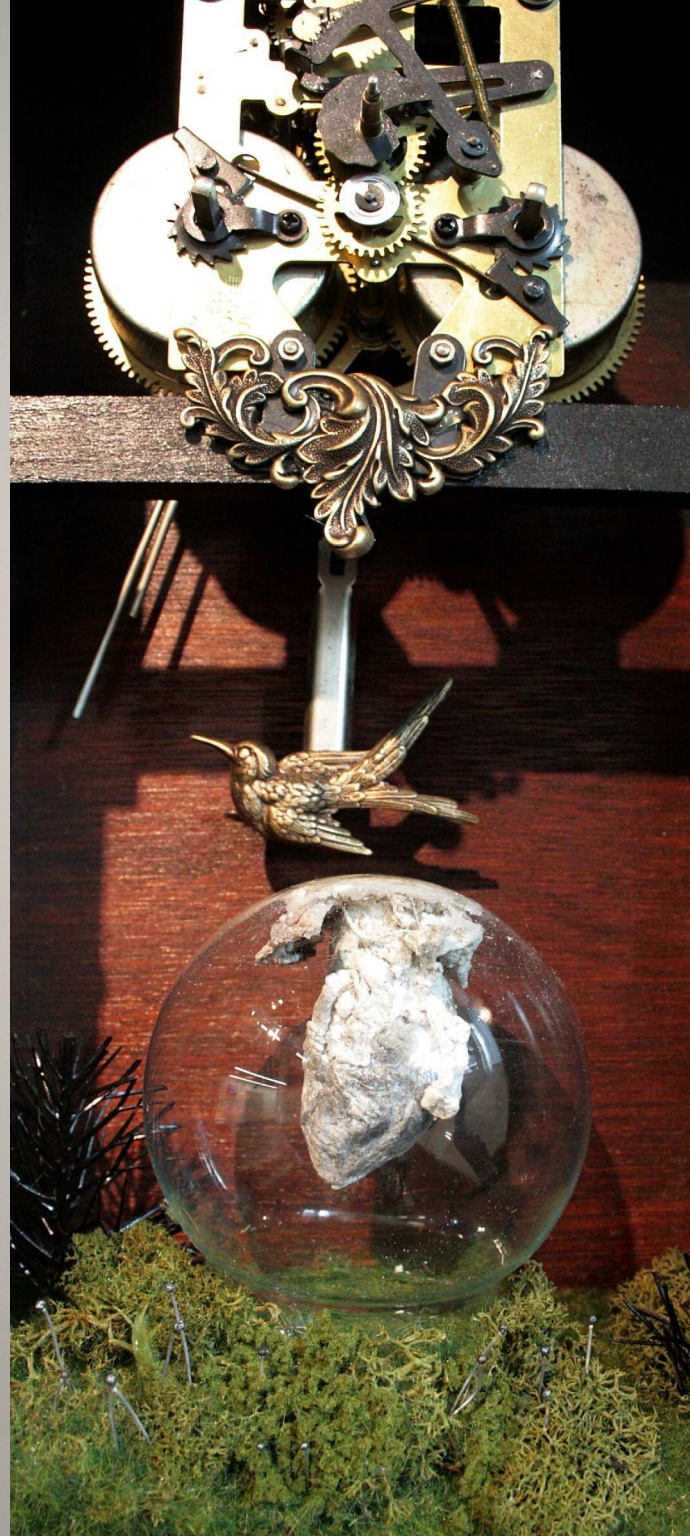
Antique clock, faux moss and mummified fetal calf heart

QACI, Kelvin Grove

This work reflects on the way in which Algernon lives on through the proliferation of the creative works developed for *The Absence of Alice*.



08



A SHRINE FOR ALGERNON: Instance #2

A Shrine for Algernon Instance #2 involves a reworking of the original sculpture to make stronger connections between FBS and practices of everyday consumption. This instance incorporated miniature landscapes with grazing cows and animal bones collected from friends and family members who had consumed them. These elements were included to create a stronger link between the death of Algernon, the meat industry, and the larger landscape of Western consumption.

A Shrine for Algernon: Instance #2, 2010
Installation view (right)
Installation detail (overleaf)
QACI, Kelvin Grove







A CABINET FOR PRESENT AND IMAGINED FUTURES

A Cabinet for Present and Imagined Futures consists of a museum-style diorama within a restored antique cabinet. The work engages with ideas and fears surrounding the outcomes of genetic engineering and other biotechnologies. The diorama contains a mixture of organic and faux materials, as well as hybrid organisms indicating the blurring of boundaries between species, and the so-called 'real' and 'created'.

The birds represent the creative and unpredictable forces within all forms of biological and creative evolution and move from the pristine white dove into a dead crow indicating that all actions have both perceived positive and negative implications. The mangled crow has been set with red precious and semi-precious gems (garnets, rubies and carnelian), indicating that suffering is often the result of actions driven by economic incentives and arbitrary perceptions of value.

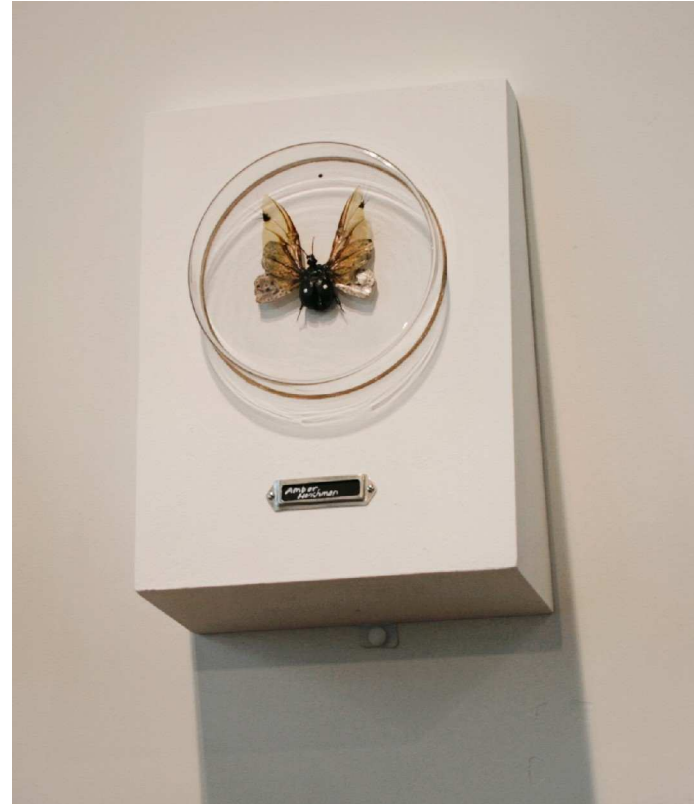


A Cabinet for Present and Imagined Futures, 2010
Restored antique cabinet, faux moss and grass, dried plants, taxidermy,
animal bones polymer clay, stainless steel wire, epoxy, resin
Installation view (previous page)
Installation detail (above and overleaf)
QACI, Kelvin Grove





Insects, 2008 - 2009
Recycled taxidermy insects, glass, MDF, metal, human and synthetic hair, latex, pigment mixed with Saos-2 and SF9 cell palettes.
Installation view with A Cabinet for Present and Imagined Futures (above)
Installation detail and title (right)
QUT Art Museum, Gardens Point



The previous work *Untitled Insects* was retitled *Insects*, and displayed in conjunction with the cabinet. In the previous exhibition of the work, viewers were invited to write name suggestions on panels below each insect. In this instance each insect received its official classification selected from the original proposals.

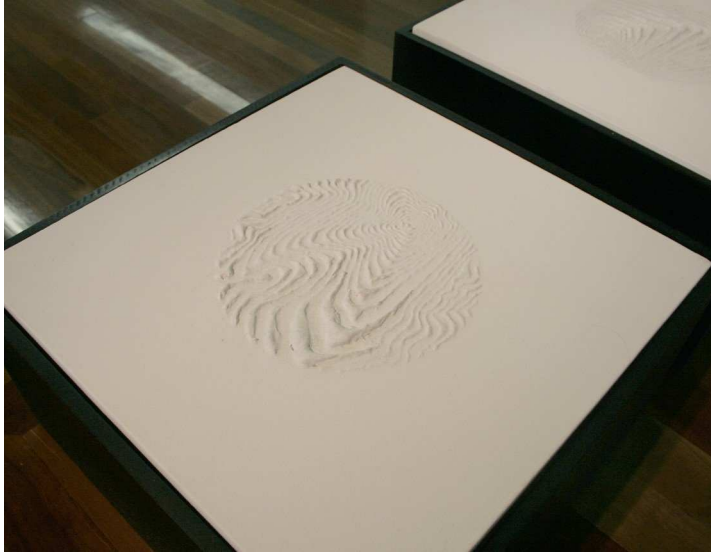




CYCLES OF FLIGHT

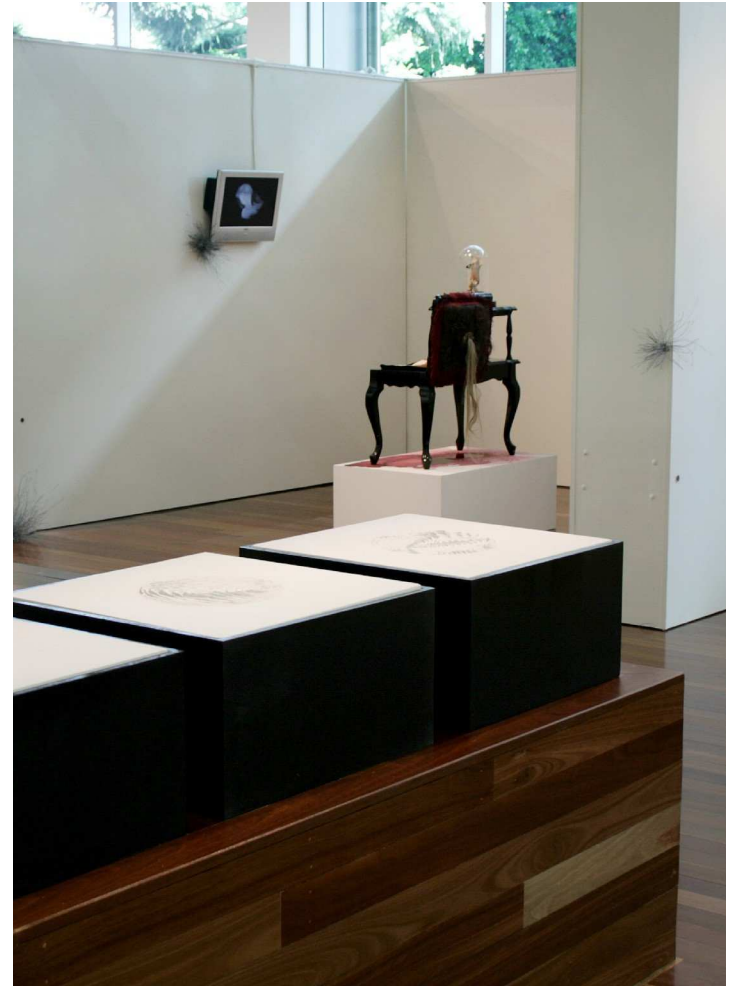
The digital video work *Cycles of Flight* is a 40 minute digital video of a bird being eaten by ants. The work engages with ideas surrounding the cycles of life and death. The bird is used as a symbol for creative evolution and the uncertainty associated with all forms of becoming.

Cycles of Flight, 2010
Digital video (40 min)
Installation view
QACI, Kelvin Grove

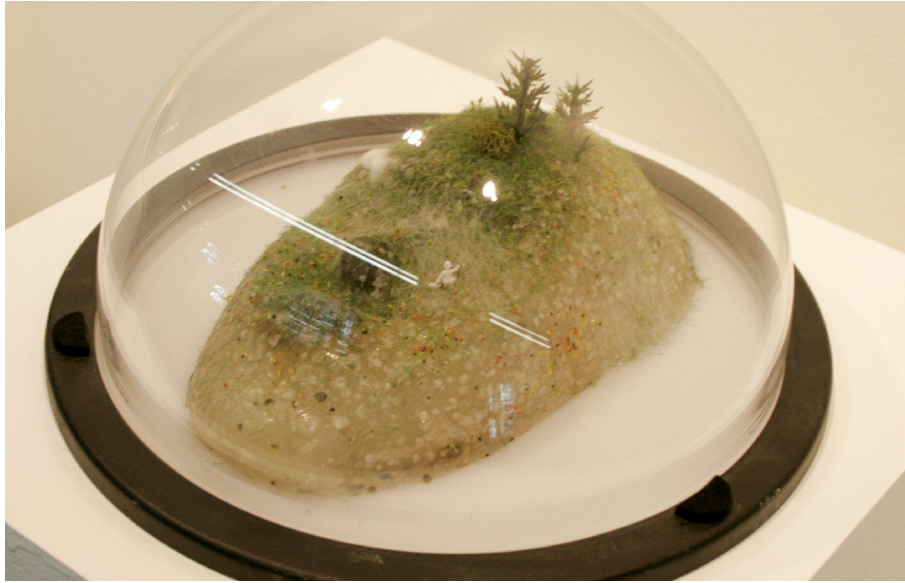


THREE DEPARTURES FROM A SINGLE POINT OF ORIGIN

The three patterned panels from *Three Departures from a Single Point of Origin* were created by tracing lines from a point of Alice's Saos-2 cells, indicating that Alice remains the point of origin for all departures. The work also connects the show on the lower level to issued explored upstairs. These works are discussed in upcoming pages.



Three Departures from a Single Point of Origin, 2010
MDF, latex, Saos-2 cells, acrylic, enamel
Installation detail (left)
Installation view (above)



THE CONTAMINATION OF ALICE: LANDSCAPES

Consisting of Agar Agar heads created from the original facial impressions of an 11 year old girl, this instance of *The Contamination of Alice: Landscapes*, links to the previous 'contamination' works.

The Agar has been modified with different nutrients and plant seeds, thus allowing for the growth of a variety of different fungal and bacterial colonies. This work comments that life is continual proliferation and becoming in which even death and decay can be seen as new beginnings and a new cycle of life.

The work also reflects on the idea of the body as landscape, composed of different living organisms, partially determined by the original 'ingredients' such as DNA, but always open to alteration through environmental encounters.





The Contamination of Alice: Landscapes
Agar Agar, plant seeds, nutrient components, Perspex, MDF
Installation detail (previous page)
Installation view (above)
QACI, Kelvin Grove

SOUVENIRS

The snow globe sculptures *Souvenirs* were re-exhibited in order to further connections through their display with different artwork components.



Souvenirs: Blood Flowers for Algernon and An Ode to all the Unborn and Unrealised Chicken Voices in my Head, 2009
Installation view (left)
Detail (above)



BUILDING BLOCK

The sculpture *Building Block* is designed to be continually created and exhibited in different combinations and compositions. This configuration relates specifically to this exhibition and focuses on the cycles of life and death. The taxidermy bird represents the role of mutation and openness within creative evolution.

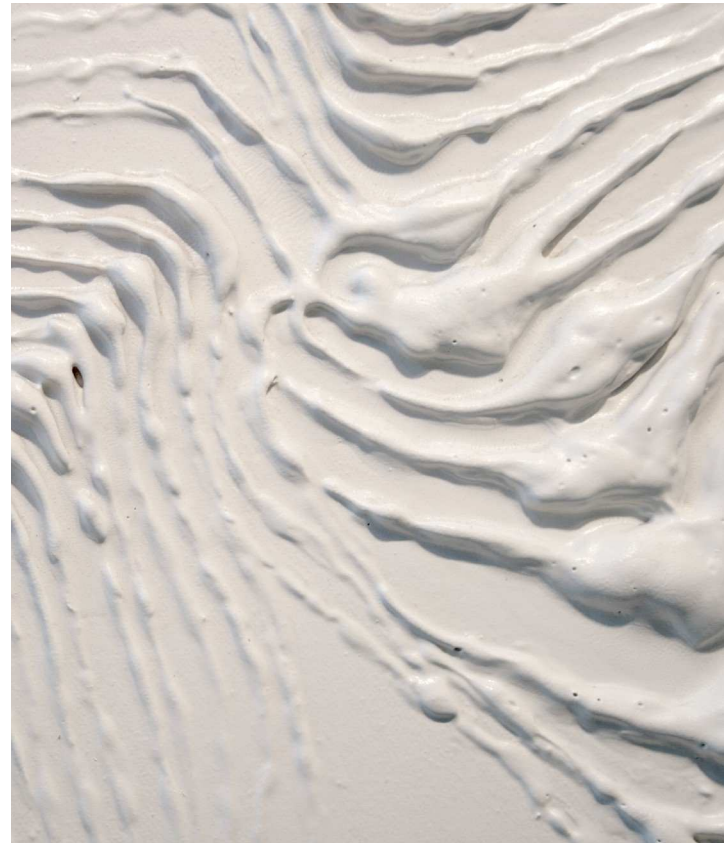
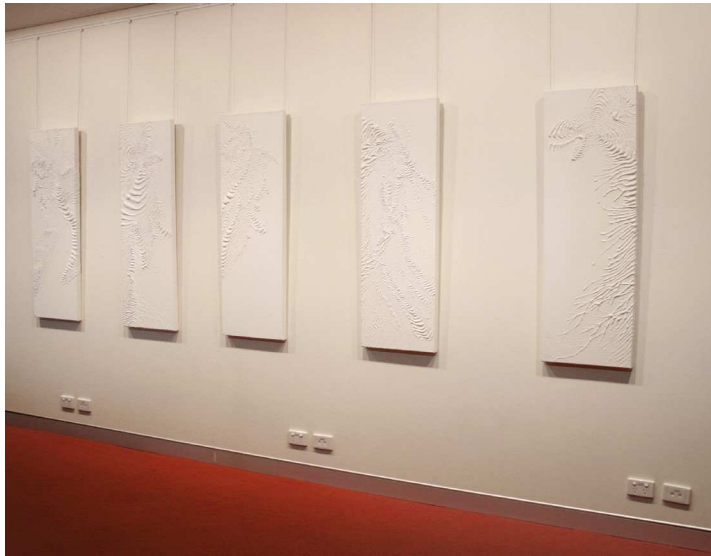
Building Block, 2009 - 2010

Faux moss and ferns, epoxy, human and synthetic hair, taxidermy, animal bone, human teeth, enamel, wood, MDF

Installation detail

QACI, Kelvin Grove

The upper level of the exhibition focused primarily on concepts of complexity and becoming. *Five Points of Origin*, *The Contamination of Alice: Instance #2* and *The Materiality of Absence in Fragments of a Body in the Process of Becoming Other* were re-exhibited. This section also included re-workings of previous panel works and the production of a new photomedia series.



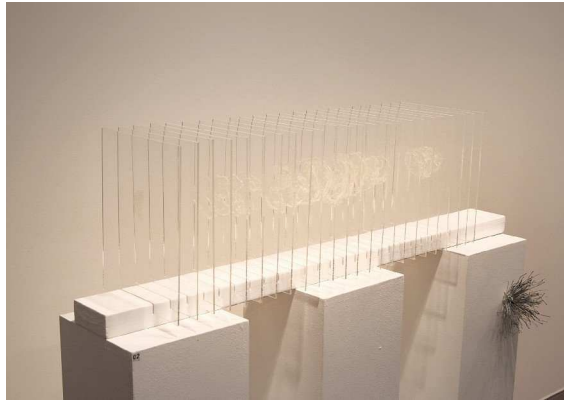
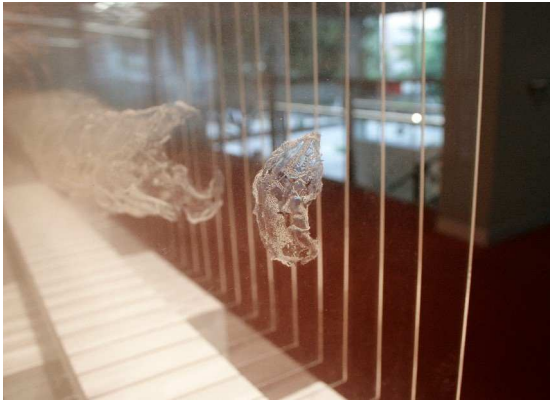


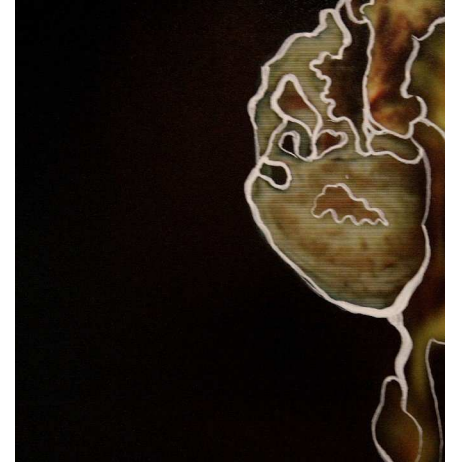
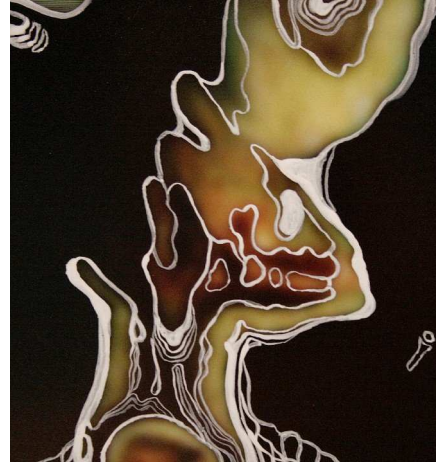
The Absence of Alice: And the Things that Open their Wings and are Otherwise not Noticeable, 2010

Upper Level: Installation view (above)

Installation details (overleaf)

QACI, Kelvin Grove



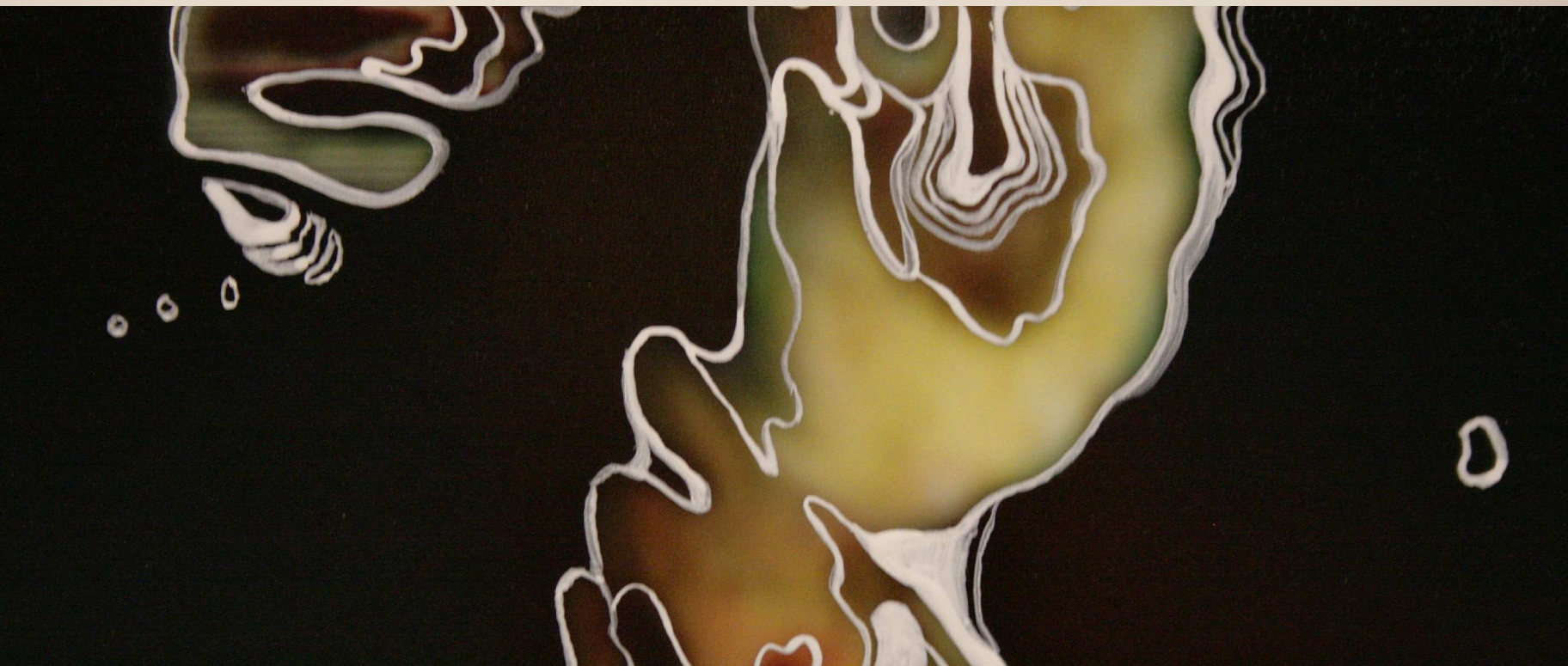


IMAGINARY BODIES

The *Imaginary Bodies* series consists of three dimensional three-dimensional representations of the 'normal' female body from the *Visible Human Project*, projected onto the artist's body. The resulting projection onto a physical body distorted the imagery, creating curious shapes that have only limited connections to an actual human body. Once printed, the resulting shapes were traced with white ink.

This work comments on the way in which there is no 'normal' or 'model' body as all bodies are different and have unique properties. During our lifetime, our bodies become further altered and inscribed through our experiences and interactions with the environment.

Imaginary Bodies, 2010,
Digital print on gloss archival paper, indian ink
30cm x 30cm ea.
Image detail (above)
Installation view and detail (overleaf)
QACI, Kelvin Grove





SYMBIOTICA

SYMBIOTICA RESIDENCY

February - May 2010

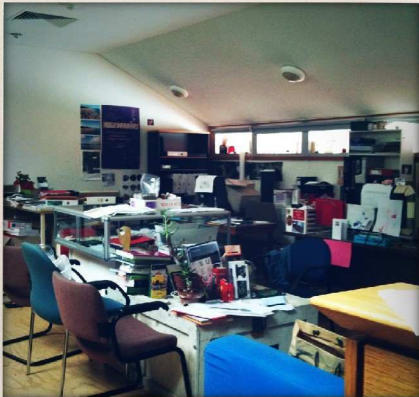
To further my engagement across art and science I attended a three month residency at SymbioticA, the centre of excellence in the biological arts at the School of Anatomy and Human Biology at the University of Western Australia (UWA) in 2010. As part of the residency proposal, I planned to create an immortal cell line from fetal calf fibroblast cells. This proposition was inspired by the use of FBS in cell and tissue culture and my previous work with Algernon, but also by the way in which viral DNA can be used to create immortal cell lines.

The original plan was to isolate cells from the skin of a fetal calf and immortalise them through viral transfection. As part of the project, I also intended to mummify the remains of the calf and display these in conjunction with the immortal cells. By juxtapositioning these elements - the living, immortal cells and the remains of the calf - I aimed to illustrate the way in which biotechnologies such as cell and tissue culture complicate distinctions between life and death, as viable cells can be isolated from a dead organism and even

be altered to remain alive almost indefinitely. To link this work to my previous engagement with fetal calves and FCS, I intended to procure meat from the mother cow which was being sacrificed for meat production, and produce snacks for viewers on the opening night of the exhibition. This component aimed to illustrate that as consumers we are complicit in a range of unseen processes of manufacture. After all, without meat production, there would not be a regular supply of fetal calves for the production of FBS.

While completion of the full project was not deemed possible within three months, I planned to use the residency timeframe to isolate fetal calf cells and for research and development of the bioreactor component. I also wanted to use the residency to learn more about genetic engineering processes to assist in the later immortalisation of the cells.

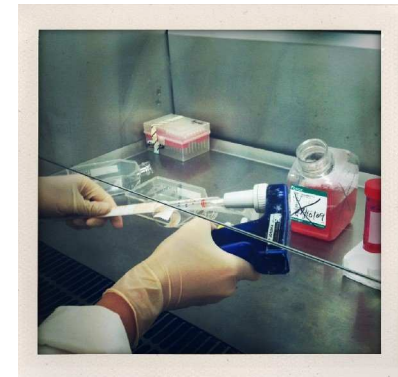
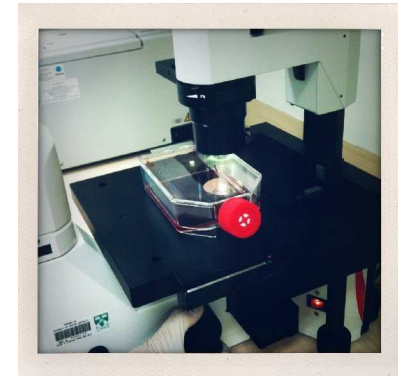




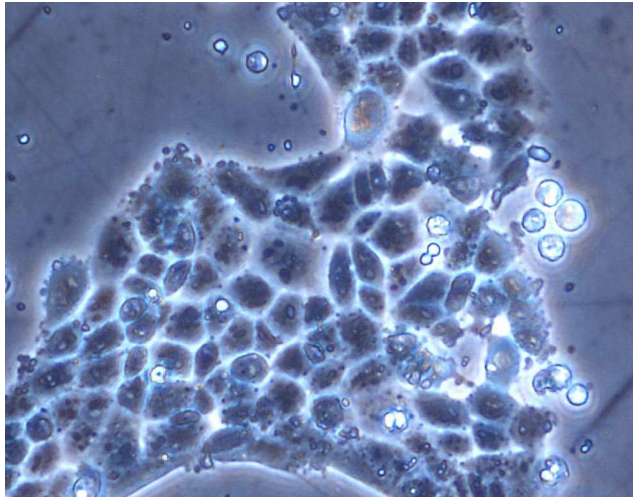
Images of the SymbioticA office at the School of Anatomy and Human Biology.

WORKING AT 'SYMBI'

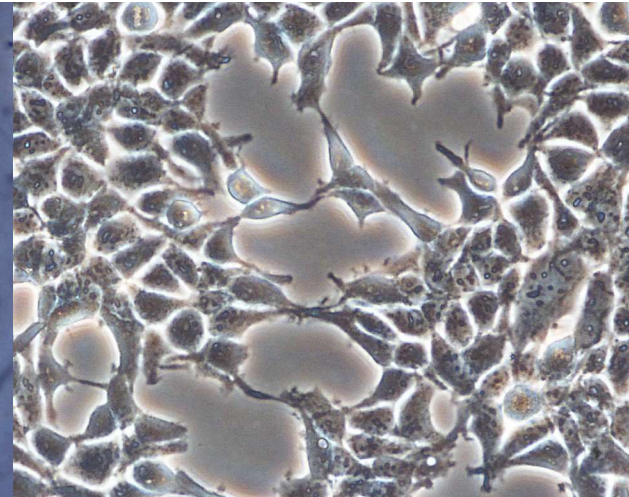
During the first few months, I attended the UWA PAWS (Program in Animal Welfare, Ethics and Science) course and cultured new cell lines in an effort to become familiar with the SymbioticA laboratory and standard operating procedures.



Viewing and maintaining cells at SymbioticA
(this page)



P19 - Embryo-derived murine teratocarcinoma cells
(embryonic mouse teratoma cells)



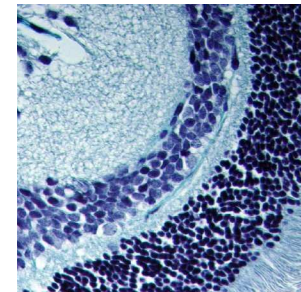
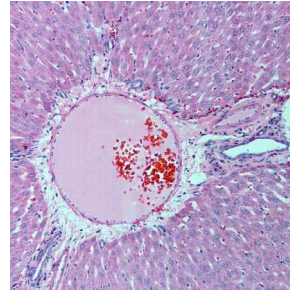
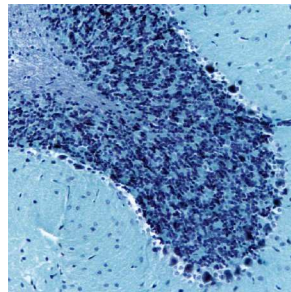
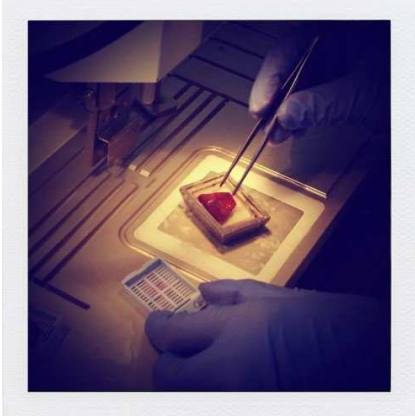
HEK293T cells - Human embryonic kidney cells
modified with SV40 Large T-antigen. These cells
were originally derived from the kidney of an aborted
fetus.

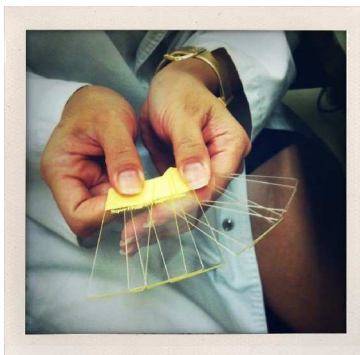
HISTOLOGY

I also learned how to prepare and process a variety of organic specimens to produce histology slides.

BASIC PROCESS

To create histology slides the samples are first fixed (in formaldehyde, then ethanol), processed to remove water, then profused with wax. The processed specimens are then embedded into wax blocks with mounting brackets. These blocks slot into a microtome machine which cuts very thin (50nm - 100 μm) tissue sections. These sections are sliced finely into a bed of warm water and carefully brushed onto slides. Once they have dried, the slides are processed further to remove the wax and the tissue sections are stained to help contrast different tissue elements.

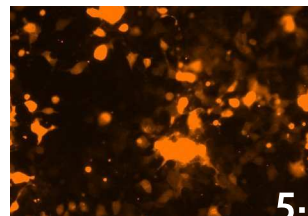
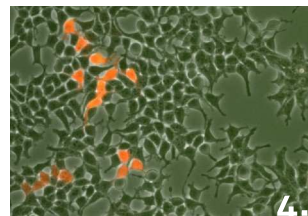
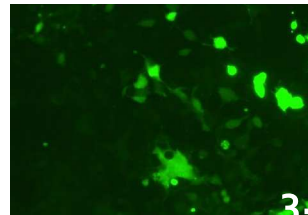
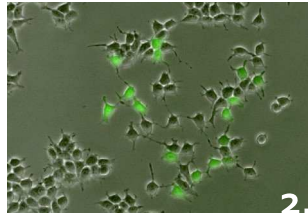
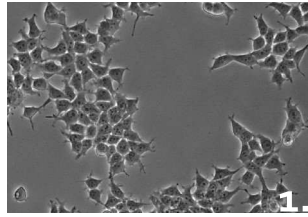




CELL TRANSFORMATION

In an effort to become more familiar with genetic engineering techniques I worked with molecular biologist Jill Muhling and participated in the transformation of HEK293T (kidney cells isolated from an aborted fetus) using red (LV-dsRED) and green (pEGFP-C1) fluorescent proteins originally derived from marine organisms.

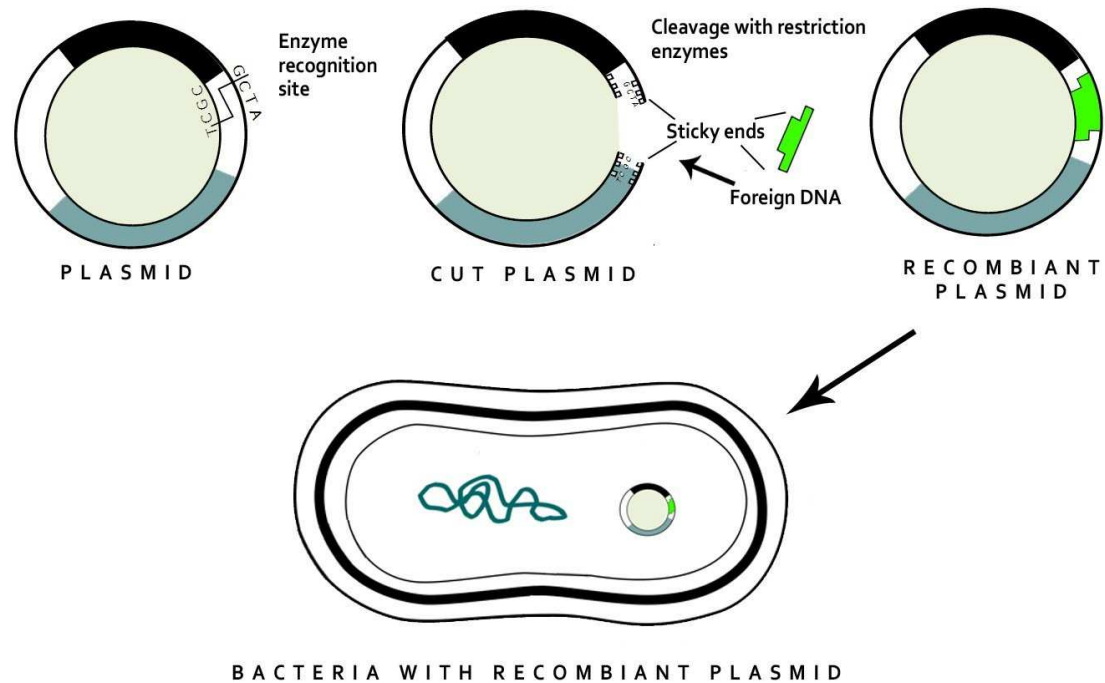
This process introduced new genetic material into the HEK293T cells using plasmids, which, once transformed, expressed a red or green glow when exposed to particular light conditions.



1. HEK293T cells unmodified
2. HEK293T + pEGFP-C1
3. HEK293T + pEGFP-C1
4. HEK293T + LV-dsRED
5. HEK293T + LV-dsRED

BASIC GENETIC ENGINEERING USING PLASMIDS

A plasmid is a small circular bacterial molecule. Using restriction enzymes it is possible to cut the plasmid at specific regions and create 'sticky ends'. These ends will fuse with introduced foreign DNA as long as it has complementary insertion regions. In this way it is possible to introduce genetic material, like fluorescent proteins from marine invertebrates, into plasmids. When the recombinant plasmids are re-introduced into a host bacterium such as *E.coli*, the organism will express the introduced trait. Many created plasmids, such as pEGFP-C1, include antibiotic resistance genes. This allows for the selection of transformed (e.g. GFP positive) cells only.





BIOREACTOR DESIGN

While waiting for approval to isolate the fetal calf cells, I started to design a bioreactor for the display of the isolated cells. A bioreactor essentially functions as an artificial body. It maintains the cells in an appropriate environment: 37°C with a 5% carbon dioxide concentration and 95% relative humidity and also supplies fresh nutrients for the cells in the form of liquid media.

These prototypes were drafted in collaboration with the SymbioticA Research Group (SARG) and engineering students Dusty Tame and John Barnard.

Early bioreactor designs followed examples of previous works and used furniture items as the basic structure. As the designs developed, they incorporated Egyptian-inspired components to create an immediate visual link to notions of the afterlife and burial rites.

Each design incorporated a central display chamber for the living fetal calf cells, as well as a large area for the mummified fetus.

Initial bioreactor design (left)
Later bioreactor designs (overleaf)

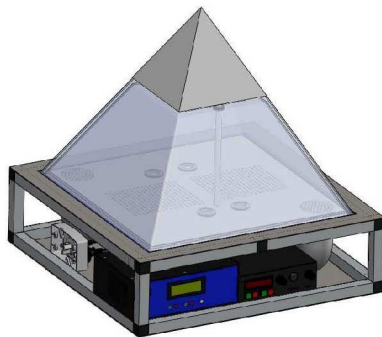
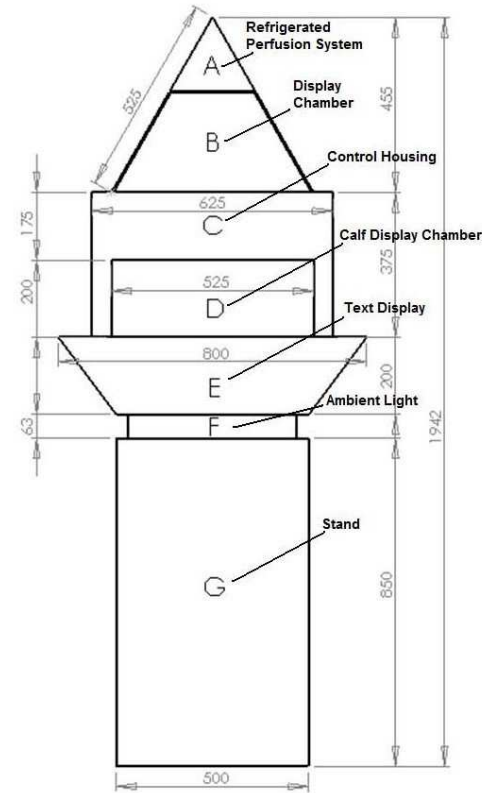
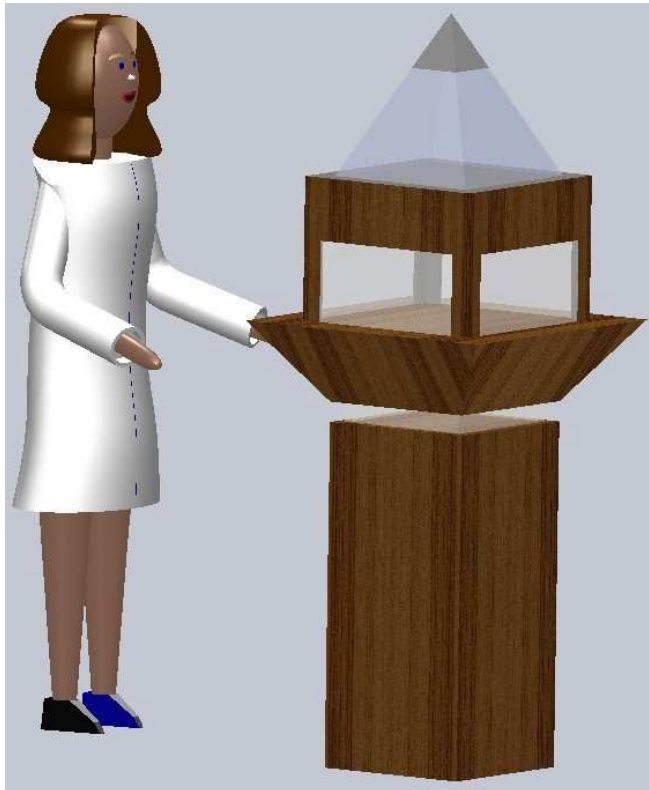




As the design progressed, it was simplified and in the final stages of drafting the bioreactor included a simple pyramid chamber for the display of the cells.

This design was later refined by engineering students Dusty Tame and John Barnard to accommodate the heating and perfusion systems. The main heating and nutrient supply components were originally designed to be contained within the upper section of the bioreactor, with the lower casing used to house the CO₂ gas bottle.

Final bioreactor design with central cell chamber, fetus display and video screen.



Bioreactor design and blueprint with dimensions.
 Images compiled by Dusty Tame in collaboration with John Barnard
 and in consultation with SARG and Svenja Kratz.



CELL ISOLATION: KIRA AND RAMA

During the final two weeks of the residency, I obtained two fetal calves - male and female - from an abattoir on the outskirts of Perth. I received them in two large plastic sacks labelled 'NOT FIT FOR HUMAN CONSUMPTION'.

Unlike Algernon, who was only around three months gestation, the fetuses I collected in Perth were in much later stages of growth and resembled fully grown calves. Each calf weighed around 20kg and was covered in thick curly black fur.

Once in the lab, I trimmed the fur of each calf and removed sections of skin for cell isolation. These sections were placed in antibiotic/antimitotic fluid to reduce the risk of contamination. Later on, these sections

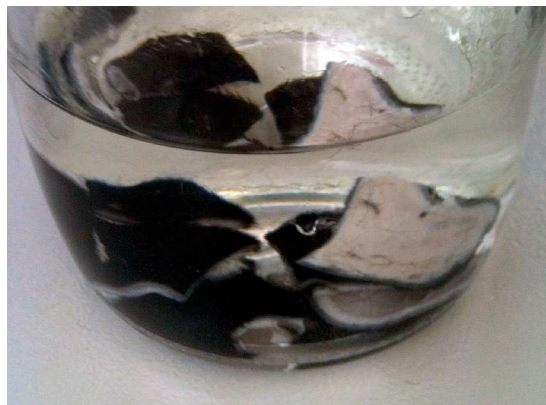
were minced and placed into a digestive enzyme overnight to isolate individual cells from the tissue.

With help from my SymbioticA colleagues I also removed the organs of each calf to prepare the bodies for mummification. Samples from different organs were collected for histology and large slices of hide removed for tanning. I also collected their hearts as an emotive memento for inclusion in the final display.

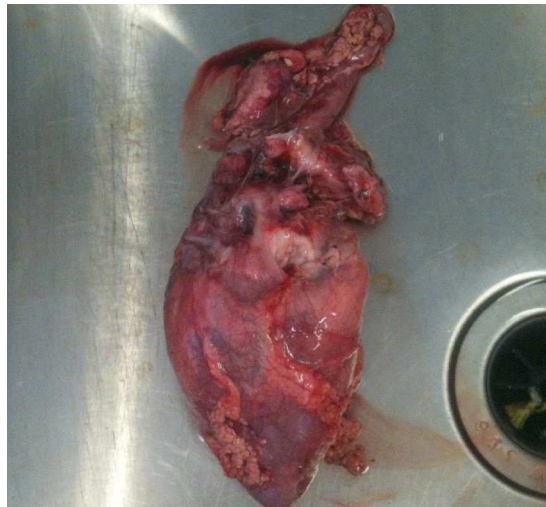
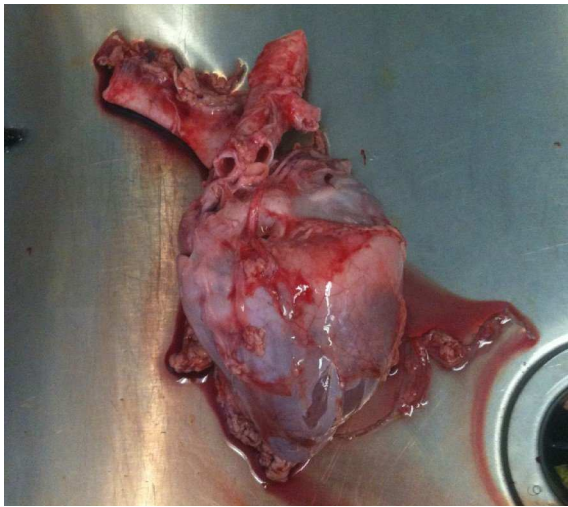
During the 'harvesting' process, we named the calves Kira (referencing a former SymbioticA resident) and Rama (an abbreviated nickname given to one of the UWA research scientists).



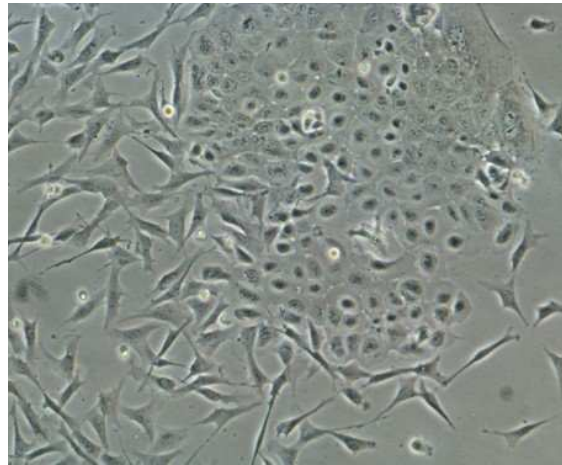
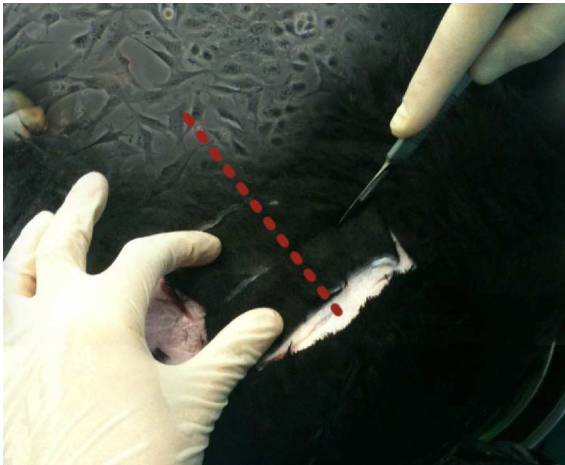
Bags containing the fetal calf obtained from an abattoir near Perth.



Tissue collection procedure from Kira (female calf) in the SymbioticA laboratory.

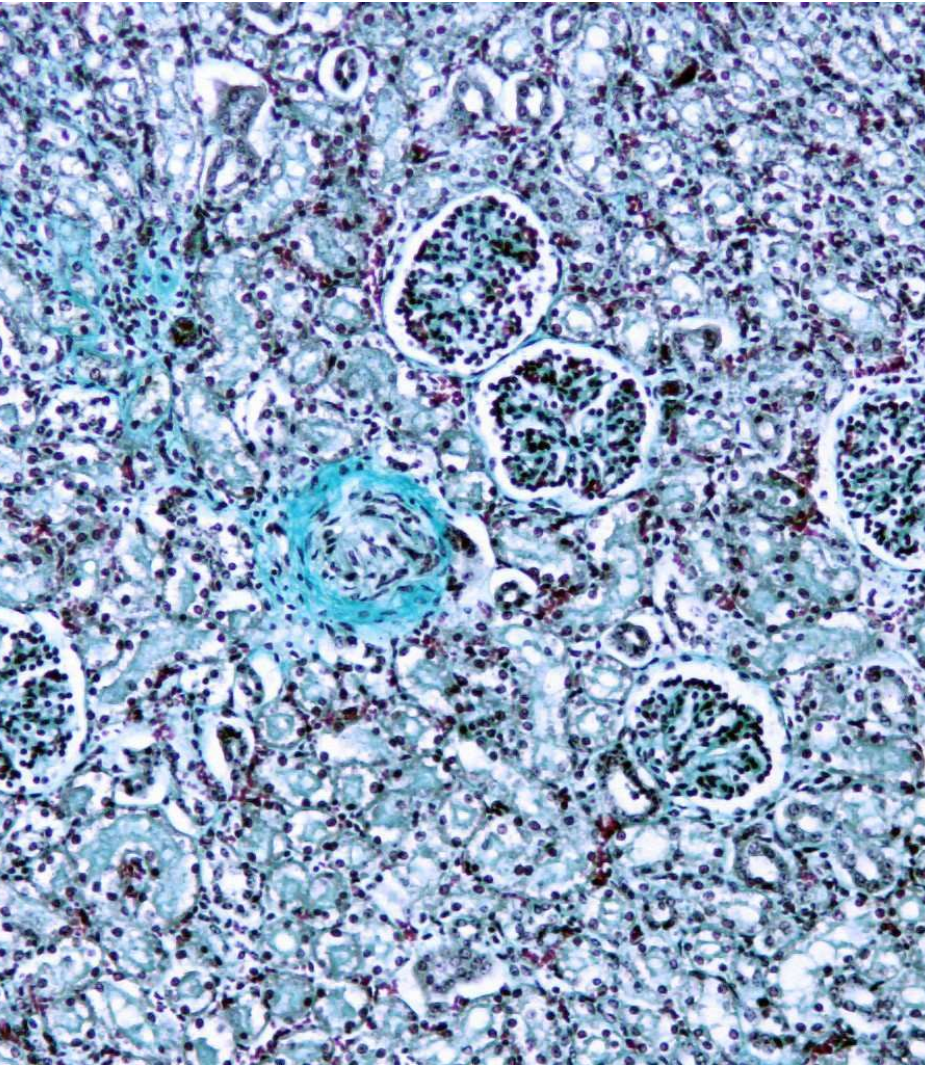


Samples collected from Kira and Rama including hearts, hide, teeth and blood.



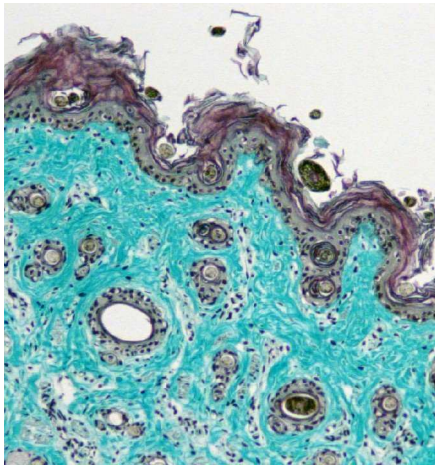
After three days, there were cells growing from the explanted calf tissue. After five days, the cells had formed colonies of two different cell types, which appeared to be fibroblasts and keratinocytes - common skin cell types.

Collage illustrating skin section that were used to isolate cells (left).
Image of cells isolated from Kira after five days of growth (right).



Fetal calf intestine: Rama

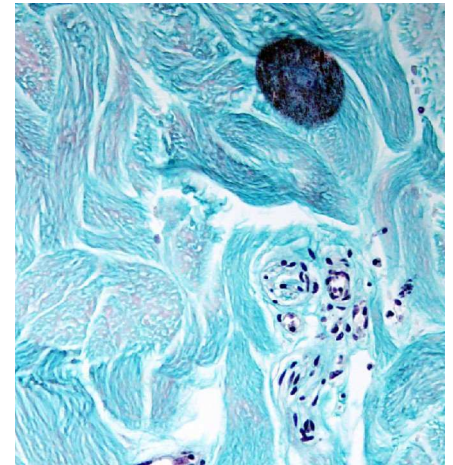
In addition to isolating cells and preserving various specimens from the calves, I also processed skin and organ sections to produce a series of histology slides.



Fetal calf skin section: Kira



Fetal calf skin section showing hair follicle: Kira



Fetal calf skin tissue: Kira



Two days before my departure, the bodies of Kira and Rama were prepared for mummification and placed in large plastic crates with a salt compound to draw out the moisture.



Bodies of Kira and Rama prior to mummification preparation (left)
Body of Rama in salt compound (right)

Crates containing calves in salt compound ready for shipment to Queensland (overleaf)



The plastic crates were secured to a pallet for collection and shipment to Queensland where I planned to continue the mummification process.

Unfortunately the crates cracked under the weight of the calves and salt compound, and started to leak residual blood and body fluid. This resulted in the required disposal of the calves' bodies.

At this point, I had already returned to Queensland, but my (lovely and kind) *SymbioticA* colleagues disposed of the bodies and salvaged the smaller specimens including the calves' hearts, hide, teeth, brain fragments and histology slides.



THE ABSENCE OF ALICE

and the elasticity of the almost
towards the immortalisation of Kira and Rama

THE ABSENCE OF ALICE and the elasticity of the almost:

Towards the immortalisation of Kira and Rama

“The elasticity of the almost is a rare instance of almost-actualisation of the micro-perceptual within the actual. In the elastic moment, the moment becomes more-than, enveloping in its folds all of the potential of its pastness and its futurity.”

Erin Manning, 2009

The first exhibition developed in response to my engagement at SymbioticA was held at Metro Arts in August 2010. The exhibition tells the story of the isolation and preservation of the calves cells as well as the loss of their mummified bodies.

As outlined, during the SymbioticA residency, I obtained two fetal calves, Kira (girl) and Rama (boy), from an abattoir. Even though they had been dead for a day when I collected them, I was still able to successfully isolate and culture their skin cells in the laboratory. I removed their organs and packed their bodies in a salt compound in an effort to mummify them.

While the calves' cells were successfully preserved and frozen in a -80° freezer waiting for their revival and immortalisation, the mummified calves had to be destroyed, as the crates they were packed into cracked under the weight of the salt and started to ooze blood and body fluid. As such, the calves had to be discarded. My SymbioticA colleagues helped me salvage their hearts, their hide, as well as some of the original salt compound. These elements are incorporated into the exhibition.

In addition to telling the story of Kira and Rama, the exhibition also engages with notions of creative evolution and the way in which every experience and event ripples and throbs with creative potential.





TO PUT WINGS ON SHOULDERS AND CLAWS ON FINGERS: For Kira and Rama

To Put Wings of Shoulders and Claws on Fingers: For Kira and Rama consists of dioramas containing miniature landscapes composed of the tanned and salted hides of Kira and Rama. Nestled within the landscapes are two chairs with bird feet and butterfly wings. The empty chairs signify a period of waiting, as though, once occupied, they will take flight, in the same way that Kira and Rama's remaining cells are waiting to be thawed and transformed. The butterfly wings connect to this idea of transformation. They have skulls painted on them indicating the death of the calves and the links between creative and destructive forces. Covered in white salt, the landscapes appear frozen in an icy winter, indicating the current frozen state of Kira and Rama's cells. However, underneath the salted hide landscape, lush grass spills out indicating the coming thawing and revival of the cells.

To Put Wings of Shoulders and Claws on Fingers: For Kira and Rama,
2010

Miniature doll chairs, bird claws, salt, tanned and salted hide from Kira and Rama, powdered cells from Kira and Rama, plastic trees, faux moss, moss, hobby grass, taxidermy finches (naturally deceased), Kira and Rama's hearts, ethanol, glass, MDF ceramic

Installation detail (left and overleaf)
Metro Arts, Brisbane

The title of this work is derived from a found poem from a 1907 edition of *Love's Meinie: Lectures on Greek and English Birds* by John Ruskin. Individual words and phrases were selected from different pages in the book to form the sentence:

*Imagination is to choose or arrange a bird...the power of putting wings on shoulders and
claws on fingers*

Within the work, birds are used as symbols for the uncertainty and illogic present within creative evolution. Thus, the phrase links imagination to the creation of birds, an illogical and yet somehow apt connection.

The egg timers displayed on the top of the sculptures contain powdered cell palettes of Kira and Rama's cells mixed with the sand. The timers have stopped, indicating the current stasis state of Kira and Rama's cells. Below the timers Kira and Rama's hearts have been preserved in Ethanol. This element aims to create a direct link to the bodies of the calves and provoke a sense of sympathy within the viewer.

In addition to the dioramas, the display also includes a small landscape with tree branches. The branches have been covered in salt, with leaves made from preserved fetal calf hide. Small finches appear to be eating the hide and blood drips from these areas. This element aims to evoke a connection between creative and destructive forces, harm and benefit.





To Put Wings of Shoulders and Claws on Fingers: For Kira and Rama, 2010

Miniature doll chairs, bird claws, salt, tanned and salted hide from Kira and Rama, powdered cells from Kira and Rama, plastic trees, faux moss, moss, hobby grass, taxidermy finches (naturally deceased), Kira and Rama's hearts, ethanol, glass, MDF ceramic

Installation detail

Metro Arts, Brisbane

EVOKING THE DEAD: A Meditation for Kira and Rama

The primary exhibition component consisted of an interactive video installation titled *Evoking the Dead: A Meditation for Kira and Rama*. Within the work, timelapse video footage of Kira and Rama's cells is projected onto crates containing ripples of salt. This footage also incorporates documentation of a fungal growth which infected a flask of Rama's cells. The infection has been included within the work to hint at the creative potential of the unexpected.

Viewers are invited to play a Tibetan crystal singing bowl. These bowls are traditionally used for meditation. The singing bowl used in the exhibition plays the 'A' note. This tone is said to activate the 'Third Eye' chakra, which is associated with intuition, imagination and is said to provide insight and 'open the door to a reality separate from the ordinary world'. Playing the singing bowl activates the video footage and the frozen cell footage comes to life.

On opening night the crates also leaked blood, referencing the original cracking of the crates that resulted in Kira and Rama's disposal,



This work engages with the idea that though engagement with the creative forces of imagination, Kira and Rama will live on.

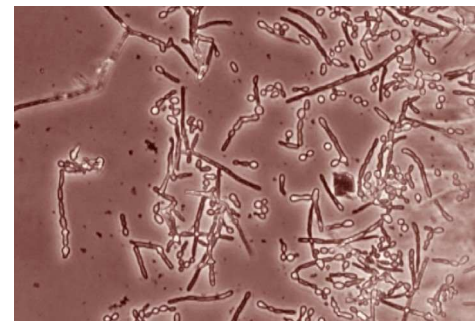
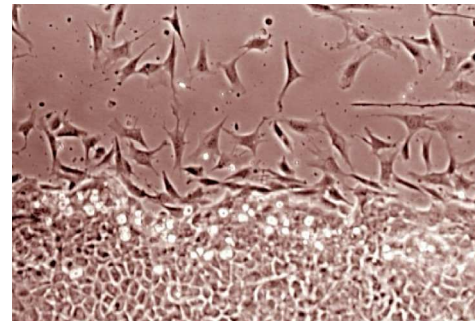
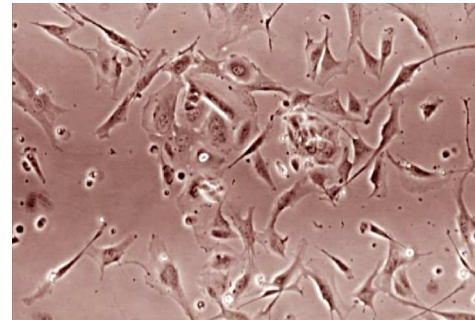
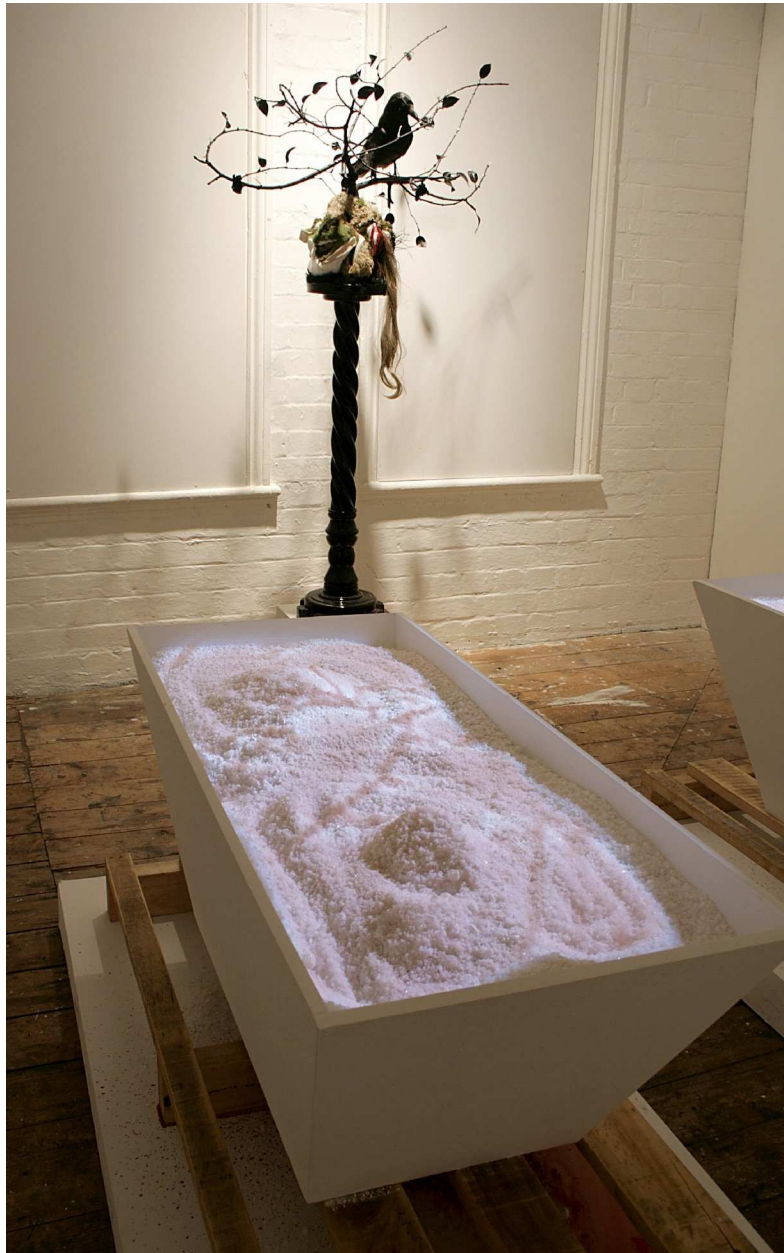
Evoking the Dead: A Meditation for Kira and Rama, 2010

Interactive video installation: MDF, salt, wooden pallets, saline with red pigment, plastic, furniture, crystal singing bowl, video projection

Installation view

Installation detail

Metro Arts, Brisbane



Evoking the Dead: A Meditation for Kira and Rama, 2010
Interactive video installation: MDF, salt, wooden pallets,
saline with red pigment, plastic, furniture, crystal singing
bowl, video projection
Installation view
Video stills
Metro Arts, Brisbane

BUILDING BLOCK

The sculpture *Building Block* was reconfigured to relate specifically to the current installation.

The raven has been included as they are often described in mythologies as birds of transition that guide the souls of the dead between this world and the next, a mediator between the opposition of life and death. In this instance, the raven watches over Kira and Rama, guiding their spirits back and forward as they are summoned using the Tibetan singing bowl.

The work also includes elements such as Alice's hair and contamination that link this piece to the previous instances of *The Absence of Alice*.

Building Block, 2010

Faux moss, moss, hobby grass, ceramic, enamel, wood, taxidermy raven (naturally deceased), bird bones, plastic, fabric, fetal calf skin, animal bone

Installation View, Metro Arts





*Evoking the Dead: A Meditation for Kira and Rama with Two Instances of Halted
Duration and Video Documentation, 2010*
Installation view
Metro Arts, Brisbane



TWO INSTANCES OF HALTED DURATION

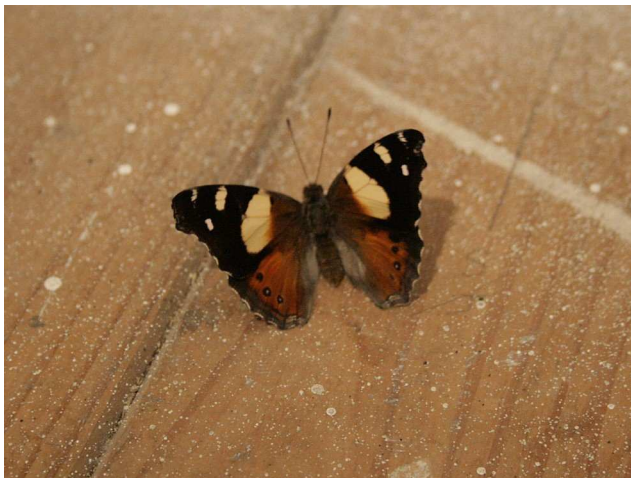
This work comments on the way in which Kira and Rama's cells are currently frozen and essentially in stasis until they will be revived. Microscope images of the cells have been etched onto the pendulums of the clocks which are currently still.

The branches emerging from the clock bases are coated in salt crystals, as well as some of the original salt compound that was used to mummify the bodies of the calves. They incorporate leaves and buds made from the tanned and salted hide of Kira and Rama. The use of salt refers to the literal initial preservation of the calves bodies. However the salt, resembling ice, also creates a link to the frozen state of the cells.

Nestled in the salted twigs are chrysalises that contain living butterflies that hatched during the exhibition. This component refers to the potential of the cells to live again, transformed.



Two Instances of Halted Duration: For Kira and Rama, 2010
Restored vintage and antique clocks, salt, moss, glass,
enamel, wood, salted and tanned hide from Kira and Rama,
living butterfly chrysalises
Installation view
Installation detail showing living chrysalis
Butterflies had hatched and were released
Metro Arts, Brisbane





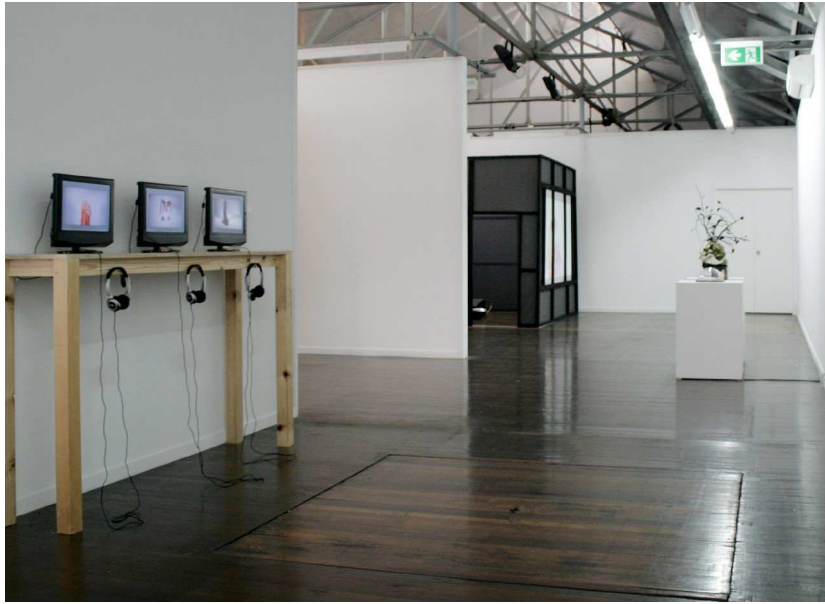


The Story of Kira and Rama
Video documentation
Video stills (above)
Installation view (previous page)
Metro Arts, Brisbane

A short video was also included in the show to provide an overview of the story of Kira and Rama for viewers who did not wish to read the accompanying text documentation.



SMALL DIVERSIONS OF ALICE



HEK293T ELASTICITIES: The Transformation of Johni or Oliver

Following the Metro Arts Exhibition I produced a video installation based on my experiences transforming HEK293T cells with red and green fluorescent proteins. The project was exhibited at Level Gallery in 2010.

The work included a 3D sculpture, based on the original *Building Block*, tissue culture flasks containing fixed transformed HEK cells, and a corresponding video animation. In this instance the *Building Block* included small fetuses and red and green butterflies linking to the origins of the HEK cell line and their transformation using red and green fluorescent proteins.

Conceptually the work engaged with the uncanny nature of cell and tissue culture, and commented on the development of new bio-engineered organisms incorporating genetic material from viruses and other organisms, such as marine animals.



HEK293T: Elasticities, The Transformation of Johni or Oliver, 2010
MDF, Perspex, flask containing fixed genetically modified 293T cells, moss, faux grass, wood, plastic, polymer clay, enamel, human and synthetic hair, calf hide
Installation view (left)
Installation detail (overleaf)
Level Gallery, Brisbane







BLOOD PAINTING

In addition to *HEK293T*, I also produced a series of paintings. Titled *Blood Paintings* these works are composed of watercolour paintings incorporating of fetal calf blood and a sodium compound used to mummify the fetal calf Algernon, as well as watercolour pigment mixed with fetal bovine serum (FBS).

The *Blood Painting* series links to previous works and comments on the use of FBS in cell and tissue culture.

Blood Painting #1, 2010

Fetal calf blood, FBS mixed with watercolour pigment, sodium chloride, carbonate and bicarbonate on archival watercolour paper sealed with epoxy

Image detail

Level Gallery, Brisbane



Documentation of mummification process of Algernon. The blood residue formed the foundations for each painting (left).

Detail of paper with salt compound, blood and watercolour (right).



Blood Painting #1, 2010

Fetal calf blood, FBS mixed with watercolour pigment, sodium chloride, carbonate and bicarbonate
on archival watercolour paper sealed with epoxy

Image view

Level Gallery, Brisbane



Blood Painting #1, 2010

Fetal calf blood, FBS mixed with watercolour pigment, sodium chloride, carbonate and bicarbonate on archival watercolour paper sealed with epoxy

Installation view

Level Gallery, Brisbane



BLOOD FOUNTAIN: For Algernon

Blood Fountain: For Algernon consists of an indoor fountain that pumps faux blood and autoclaved samples of fetal calf and human blood. The work is designed to be exhibited in conjunction with the Blood Painting series and comments further on the close interconnections between life and death.

The fountain resembles a miniature landscape/diorama incorporating orchids and butterflies which connect to ideas relating to fragility, beauty and transformation.

The fountain is fully contained within a glass covering and presents no danger to viewers, as the blood components have been sterilised and contained.

This instance of *Blood Fountain* functioned as a preliminary design.



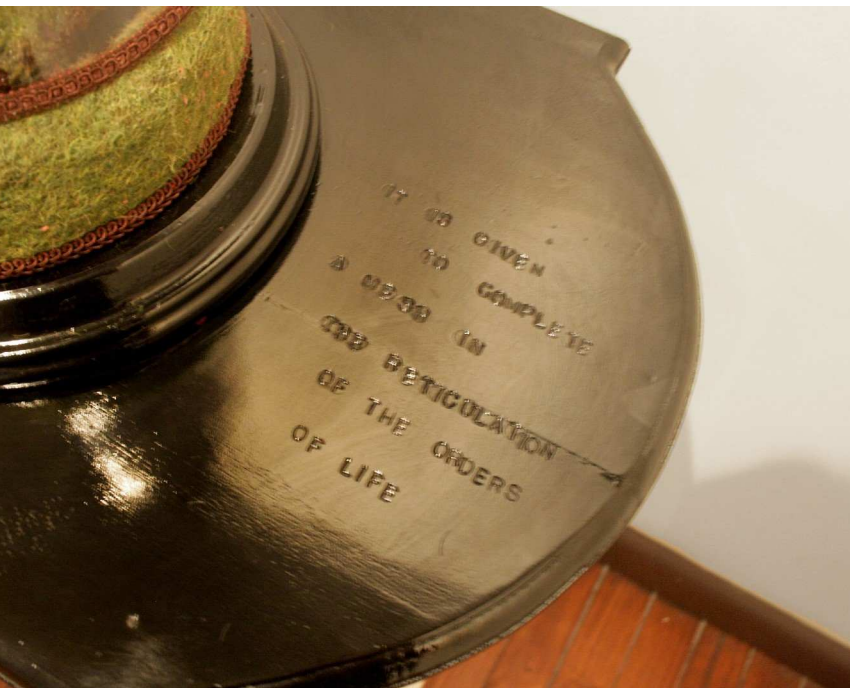
Blood Fountain, 2010
Installation view and detail
Woolloongabba Art Gallery, Woolloongabba



Blood fountain landscape detail with running blood.



Clock incorporating the mummified heart of the fetal calf Algernon.



The table used within the installation incorporated a found poem from John Ruskin's *Love's Meinie: Lectures on Greek and English Birds*:

The vibration of wings, wings: it is invisible.

As that infinitude of joints, tissues, veins and fibres that vibrate in the microscopic.

It is given to complete a mesh in the reticulation of the orders of life.

The poem relates to the idea of creative evolution and notions transformation. For example: *The vibration of wings, wings it is invisible* - refers to the idea of creative flight and the invisibility of creative evolution, while the next stanzas comment on the interconnections between ourselves and the microscopic and unseen organisms which we rely on for our survival.



VISCERAL THE LIVING ART EXPERIMENT

Towards the immortalisation of
Kira and Rama Rama

Bioreactor Prototype

In 2011, the first bioreactor prototype developed by Dusty Tame and John Barnard in collaboration with SARG was displayed as part of the SymbioticA 10 Year Anniversary Show, *Visceral: The Living Art Experiment*, at the Science Gallery in Dublin.



The bioreactor was included for display in a custom-built SymbioticA laboratory, on site at the gallery.

Bioreactor prototype in SymbioticA custom built laboratory at The Science Gallery (above)

Original bioreactor design by Dusty Tame and John Barnard. Prototype sketch by Dusty Tame (left)

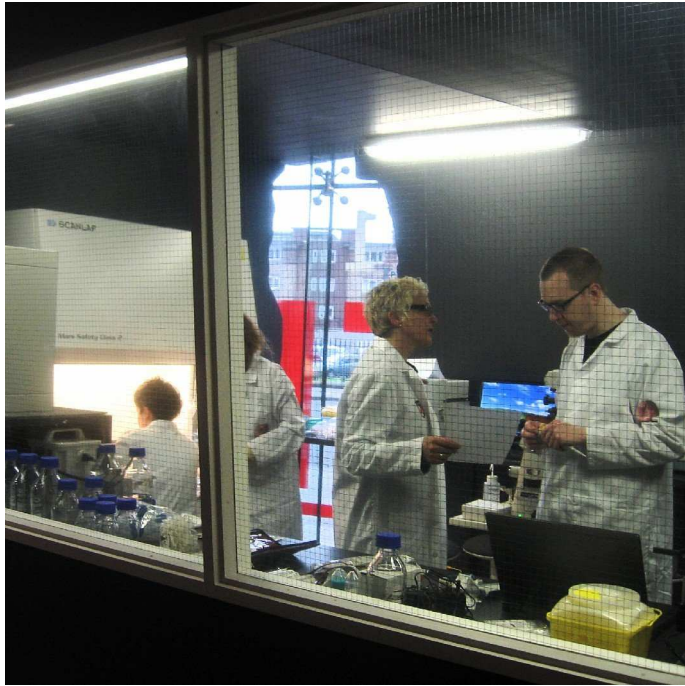


Image of artists in custom laboratory at the Science Galley in Dublin.



Image of bioreactor prototype visible through window.



In addition to the bioreactor prototype, my exhibition contribution included two miniature dioramas that commented on the isolation of Kira and Rama's cells and their eventual transformation into immortal cell lines through the introduction of viral DNA.

Following previous exhibition examples, these dioramas included tanned and salted fetal calf hide and miniature chairs with butterfly wings. These instances also included image of the fetal cal cells printed onto the chairs mixed with cell palette samples and cryovials.

The dioramas were donated to SymbioticA following the exhibition to thank colleagues for their assistance with the project.



Towards the Immortalisation of Kira and Rama, 2011

Glass, fetal calf hide, faux grass and moss, calf fur, miniature chairs, plastic trees, cryovials, polymer clay, fixed fetal calf cells in resin, MDF, epoxy

Installation view (above)

Installation detail (previous page)

Science Gallery, Dublin



Towards the Immortalisation of Kira and Rama, 2011

Glass, fetal calf hide, faux grass and moss, calf fur, miniature chairs, plastic trees, cryovials, polymer clay, fixed fetal calf cells in resin, MDF, epoxy

Installation detail illustrating printed image of fetal calf cells on miniature chair (left)

Installation detail illustrating faux moss and small fetus growth (above)

Installation detail with skull butterfly wing (overleaf)

Science Gallery, Dublin





THE ABSENCE OF ALICE

and the bone gardens

THE ABSENCE OF ALICE and the bone gardens

Shown at *The Block* gallery in August 2010, *The Absence of Alice and the Bone Gardens* presented the seventh instance within *The Absence of Alice* series and explored cycles of life and death and the complex relationships between humans and other organism in the context of scientific research and everyday practices of engagement and consumption

The exhibition included a variety of sculptural and new media works incorporating a variety of living, preserved and transformed organisms.

The exhibition was shown in conjunction with the *Virtual Anatomies Symposium* at the University of Queensland, which explored the 'cultural impact of new medical imaging technologies'.



The Absence of Alice and the Bone Gardens, 2011
Installation view
The Block, CI Precinct, Kelvin Grove
Photo: Dan Cole



The Absence of Alice and the Bone Gardens, 2011
Installation view
The Block, CI Precinct, Kelvin Grove
Photo: Dan Cole

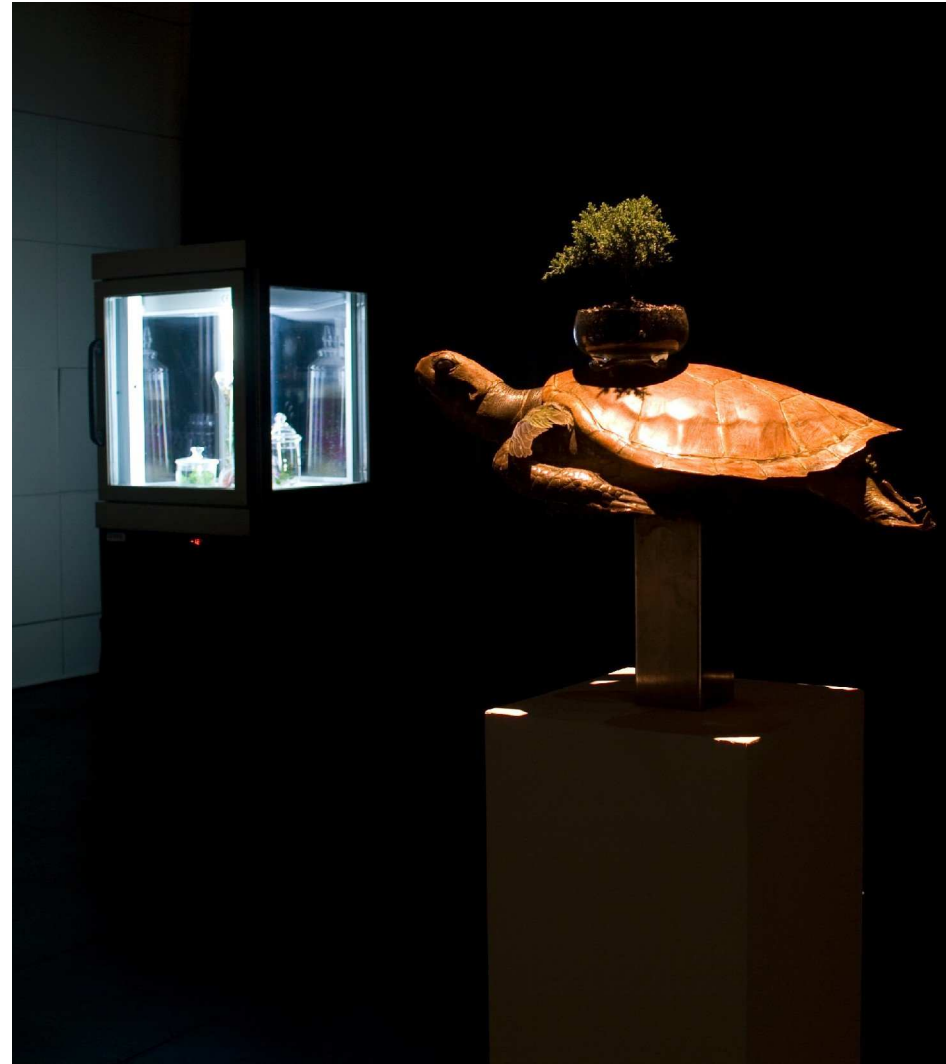
A TURTLE FONDLY IN IMAGINARY WORLDS AND THE DESIRE FOR CERTAINTY AND CONTROL

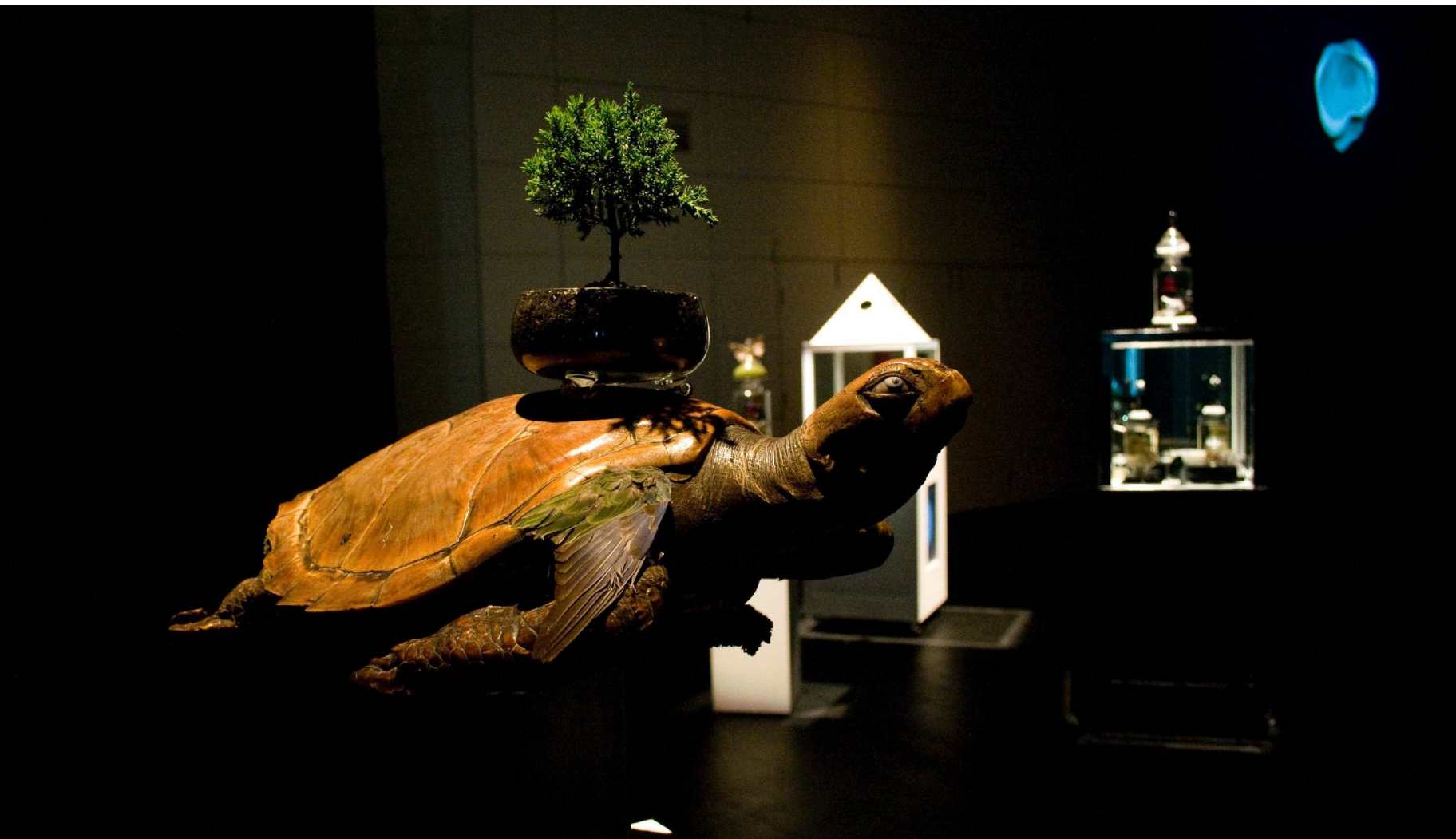
A Turtle Fondly in Imaginary Worlds and the Desire for Certainty and Control consists of an antique taxidermy turtle with a glass vessel on its back containing a living bonsai tree. The work references the common mytheme of the World Turtle, commenting on the way in which humans create different narratives to explain the world from ancient mythologies to contemporary scientific discourses. The bonsai tree represents the earth, but is also used as symbol of the human desire to control and shape the world to suit particular desires.

A Turtle Fondly in Imaginary Worlds and the Desire for Certainty and Control, 2010

Antique Turtle, living bonsai tree, taxidermy bird wings, stainless steel, MDF, faux moss

Installation view
The Block, CI Precinct, Kelvin Grove





A Turtle Fondly in Imaginary Worlds and the Desire for Certainty and Control, 2010
Antique Turtle, living bonsai tree, taxidermy bird wings, stainless steel, MDF, faux moss
Installation view
The Block, CI Precinct, Kelvin Grove



LIFE AND DEATH VESSELS: A Collection of Curiosities

Life and Death Vessels consists of a variety of artifacts and glass vessels incorporating living and preserved plant and animal specimens. The installation explores the complex relationships between humans and other organisms and engages with the human endeavour to understand and control the world around us, particularly through scientific investigation.

To illustrate this search for understanding and control, many of the vessels are engraved with found poems a variety of philosophical and scientific texts. For example, a series of hearts encased in resin is inscribed with text isolated from Giorgio Agamben's *Taxonomies* in *The Open: Man and Animal*:

Weakness is a peremptory gesture in which boundaries become man's identifying characteristic par excellence. A story of certainty. Sirens. Seals. Sea Lions and order for wisdom and knowledge. Clearly defined species producing a series of mirrors in which man sees his own image. Always.

In order to be human



While the hearts are from various organisms, the viewer is generally most drawn to the heart of the pigeon, as it most resembles a human heart. Inscribed on the edge of the object, the poem comments on the human need to categorise and create the illusion of order and certainty and also references the Western tendency to view ourselves as central beings in our world order, relating to and caring most for the organisms that remind us of ourselves.

Life and Death Vessels: A Collection of Curiosities, 2011

Glass cabinet, cast human and animal bones, grass, glass vessels, taxidermy animals, animal bones, plants, preserved organs and organisms in resin, live grass and plants, live triops, shells, bird wings

Installation detail: Engraved hearts in resin (above)

Installation view (overleaf)

The Block, CI Precinct, Kelvin Grove







Life and Death Vessels: A Collection of Curiosities, 2011

Glass cabinet, cast human and animal bones, grass, glass vessels, taxidermy animals, animal bones, plants, preserved organs and organisms in resin, live grass and plants, live triops, shells, bird wings

Installation details

The Block, CI Precinct, Kelvin Grove

Photos: Dan Cole





As a further example, the glass vessel depicted incorporates a found poem from *The Study of Ants* by S.H. Scaife:

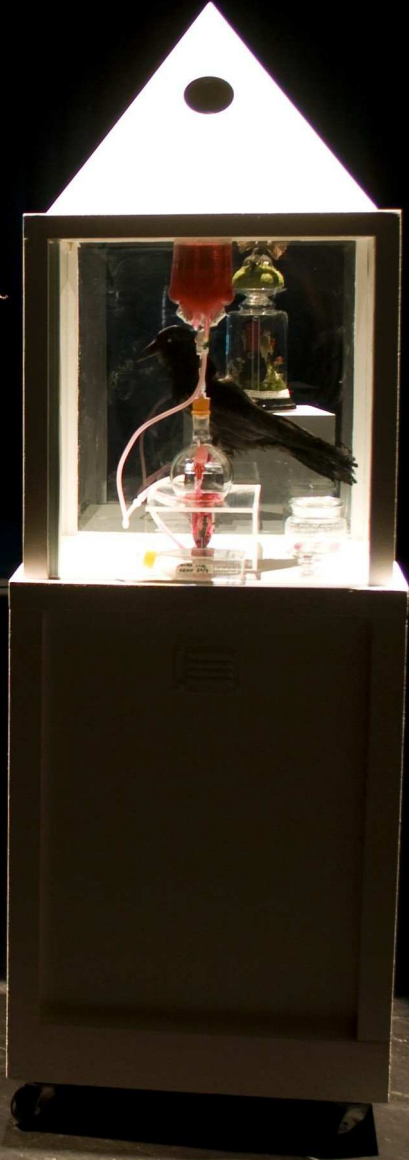
*Nests are found in bodily structure and habits;
In orchards and gardens and the sweet secretions from one
year to the next.
Drawing breath.*

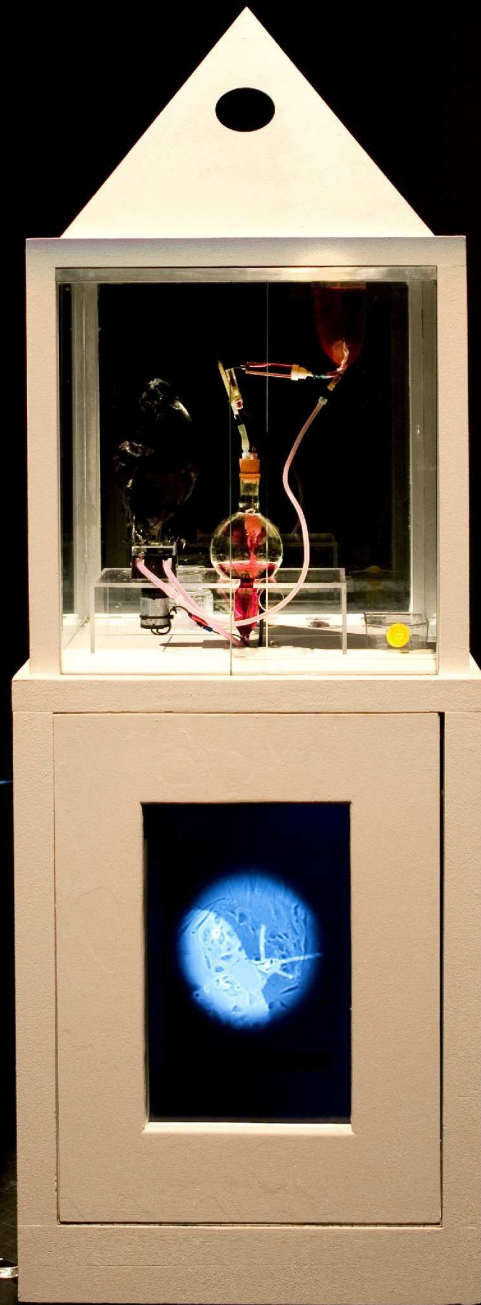
This vessel comments on the carrying over of past and present events and encounters into the future.

To further this idea the vessel includes a bone structure (referencing Alice) and beaded silkworm cocoons and a butterfly (referencing Kira and Rama).





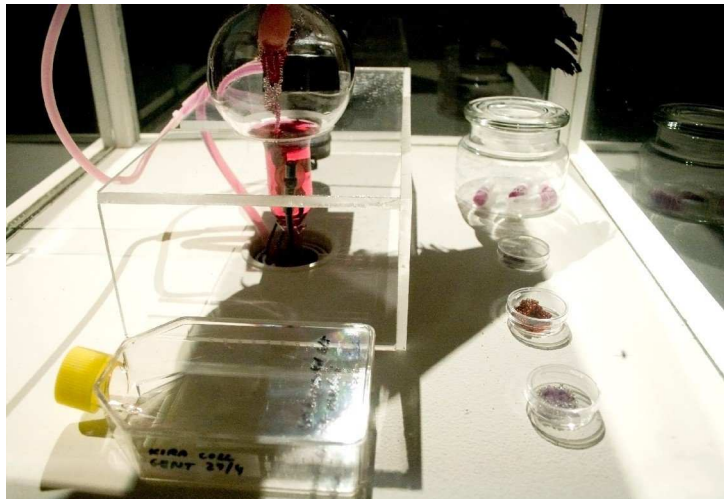




TOWARDS THE IMMORTALISATION OF KIRA AND RAMA: The Temporary Resurrection and Second Death of Kira

The exhibition included a working bioreactor prototype. This prototype consisted of a simplified version of the original design. It used a basic drip-feed system and was developed with Tristan Kroll and Leo Leung from IHBI. The bioreactor was used to house Kira's thawed cells. These cells were seeded into a beaded silkworm cocoon and displayed in conjunction with the original isolation flask, cryovials and scaffolds from cell seeding trials.

A video was also included within the display which provided an overview of the project.



Towards the Immortalisation of Kira and Rama:

The Temporary Resurrection and Second Death of Kira, 2011

Custom bioreactor, beaded silkworm cocoon seeded with primary fetal calf cells from Kira, original flask in which the cells were cultured and other relics from the development process (scaffold trials, cryovials), digital video

Installation view (previous page)

Installation detail (above)

The Block, CI Precinct, Kelvin Grove

Photos(previous page): Dan Cole



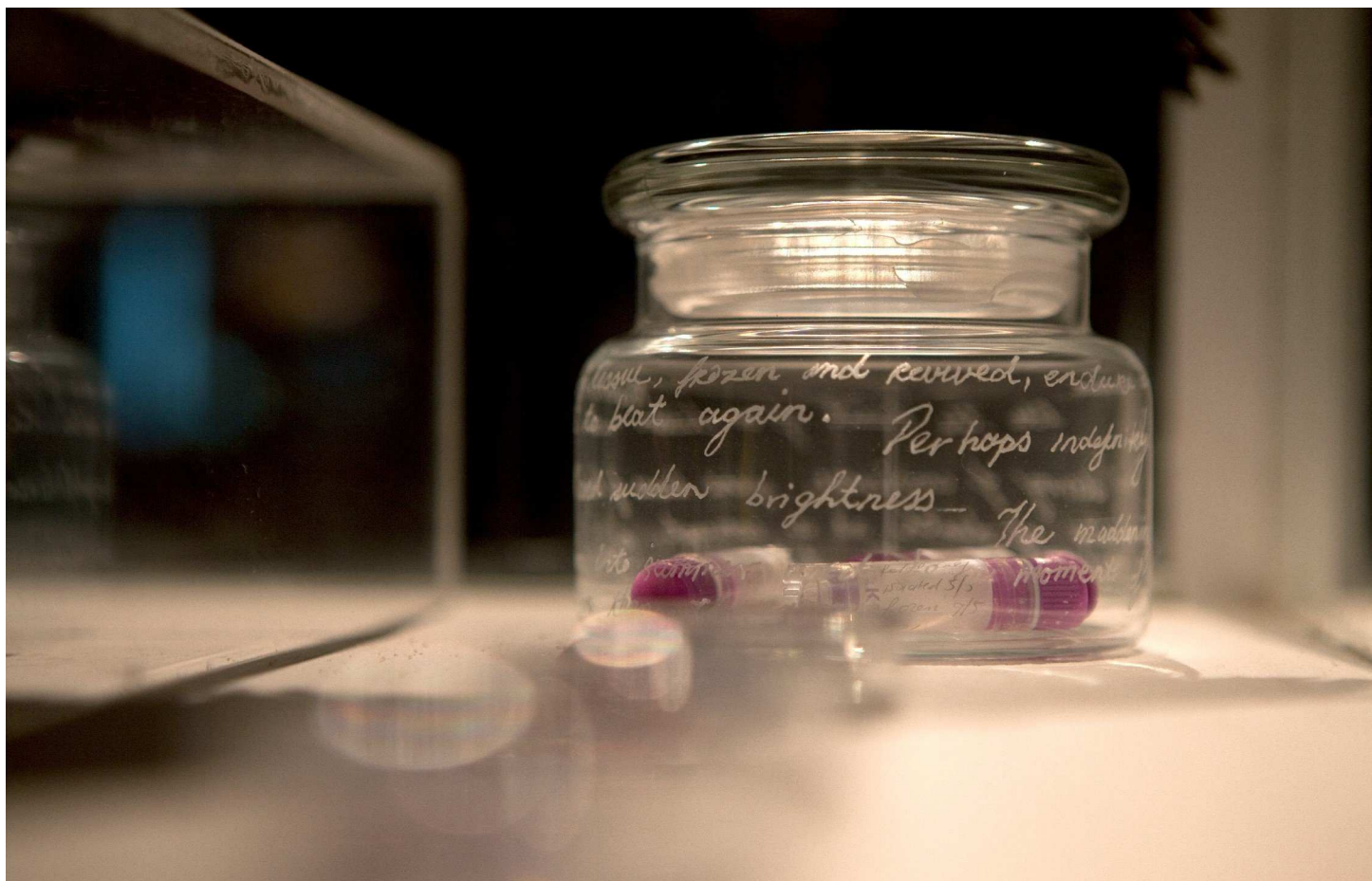
The vessel containing cryovials in which Kira's cells were originally frozen was inscribed with a found poem from the Prospect of Immortality by Robert C.W. Ettinger:

*Resurrections of tissue, frozen and revived, endure
and reproduce like the heart of a chicken was able to
beat again.
Perhaps indefinitely.*

*The stirring of conscience opens lines of thought and
sudden brightness.*

The maddening absurdity of death as a concept.

*Open a door into summer and be a moment of sleep
without dreams. The freezer is more attractive than
the grave.*



*Towards the Immortalisation of Kira and Rama:
The Temporary Resurrection and Second Death of Kira, 2011*
Installation detail with cryovial vessel (above)
Installation detail with scaffold (previous page)
The Block, CI Precinct, Kelvin Grove

Photos: Dan Cole



Relics from the calves and specimens collected during the cell isolation process were also included as part of the exhibition. This included histology slides, skin fragments, hide and their hearts.

On opening night, viewers were asked to eat meat pies containing beef from the mother's of the calves who were killed for meat production.

Towards the Immortalisation of Kira and Rama:
The Temporary Resurrection and Second Death of Kira, 2011
Installation view
The Block, CI Precinct, Kelvin Grove





*Towards the Immortalisation of Kira and Rama:
The Temporary Resurrection and Second Death of Kira, 2011*
Custom bioreactor, beaded silkworm cocoon seeded
with primary fetal calf cells from Kira, original flask in
which the cells were cultured and other relics from the
development process (scaffold trials, cryovials), digital
video
Installation detail showcasing relic cabinet (left)
Installation detail showcasing Kira diorama (overleaf)
The Block, CI Precinct, Kelvin Grove

Photos: Dan Cole



The bioreactor and display case were displayed in conjunction with two dioramas originally produced for *The Absence of Alice and the Elasticity of the Almost*. These dioramas represent the two calves, Kira and Rama. In this instance Kira's diorama includes additional greenery, bird wings, taxidermy bird in flight and flowers. These elements comment on the 'resurrection' of her cells.



**FROZEN FLOWERS:
Saos-2, HEK293, P19, Kira Kc,
Rama Kc, 293T:Lv DS Red, 293T:
GFP, HEK293T**

Frozen Flowers consists of display freezer containing different glass vessels filled with frozen flowers and cryovials containing a variety of cells used during the course of my research including display Saos-2, HEK293, C12, P19, Kira and Rama's cells, 293T:Lv DS Red, 293T: GFP, 293T cells.

Additional elements have also been incorporated within the display to link the cells to their origins (e. g. blonde hair, fetal calf hide etc.).

Frozen Flowers: Saos-2, HEK293, P19, Kira Kc, Rama Kc 293T:Lv DS Red, 293T: GFP, HEK293T, 2011

Display freezer, flowers, ice, tanned and salted fetal calf hide, cryovials, eggshells, hair, butterfly chrysalises, earth

Installation detail
The Block, QUT Creative Industries Precinct



Frozen Flowers: Saos-2, HEK293, P19, Kira and Rama, 293T:LV DS Red, 293T:GFP, HEK293T, 2011

Display freezer, flowers, ice, tanned and salted fetal calf hide, cryocials, eggshells, hair, butterfly chrysalises, earth

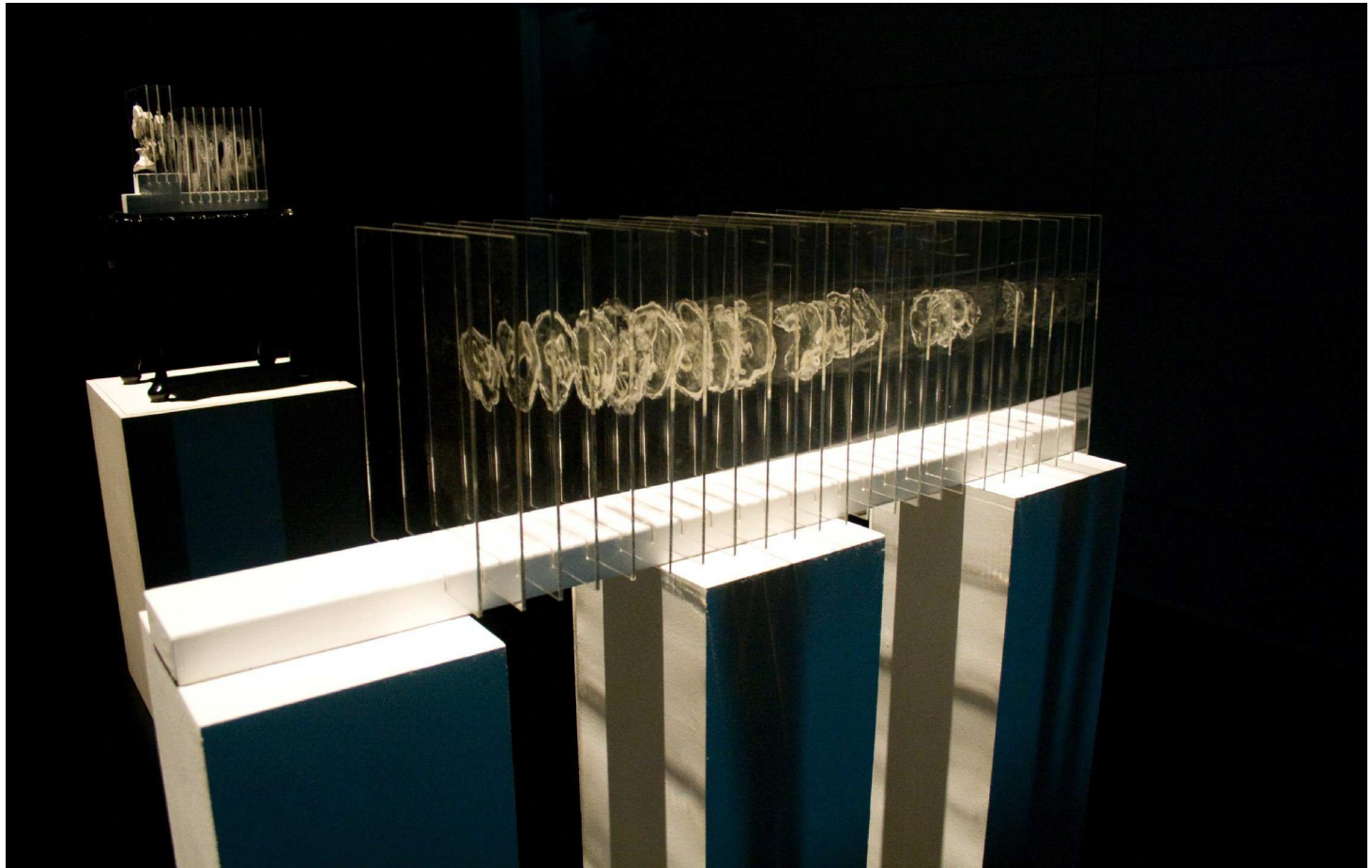
Installation view and detail

The Block, QUT Creative Industries Precinct



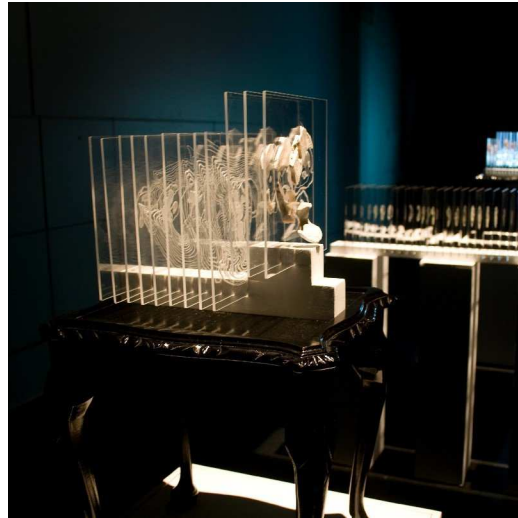
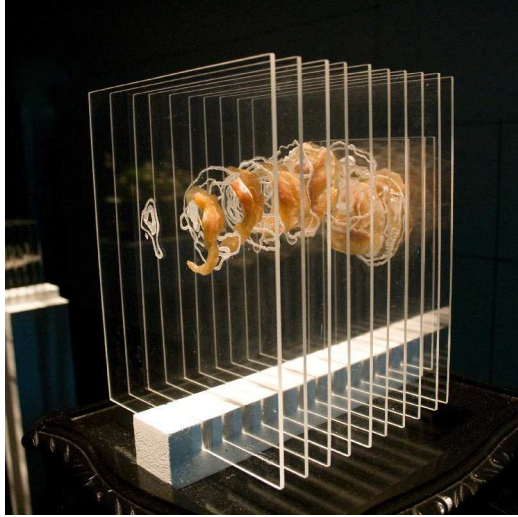
THE MATERIALITY OF ABSENCE

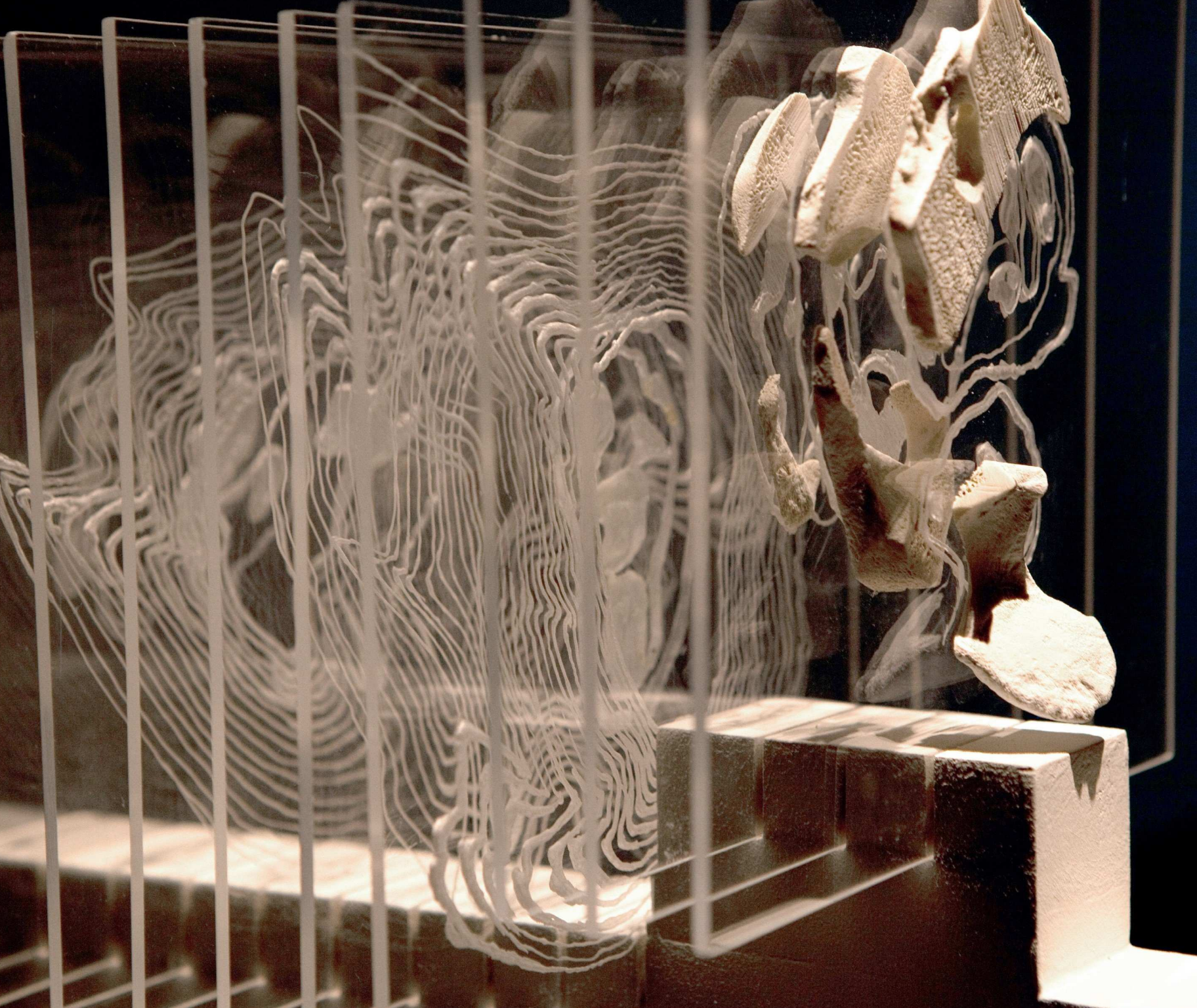
The Materiality of Absence in Fragments of the Body in the Process of Becoming Other was re-displayed in conjunction with two new Perspex panel displays incorporating bone fragments and original latex shapes. These panel works were presented on plinths incorporating circular canvass patterns originally displayed as *Three Departures from a Single Point of Origin*.



The Materiality of Absence in Fragments of a Body in the Process of Becoming, 2009
Installation view (above)
Installation detail (overleaf)
QUT Visual Art Gallery, Kelvin Grove

Photos: Dan Cole







THREE SHRINES FOR ALGERNON

A Shrine for Algernon: Instance #2 was included in the show and displayed in conjunction with two additional shrines.

These shrines connected to the unseen victims of consumption, but also linked to the concept of creative evolution and cycles of life and death.

The Absence of Alice and the Bone Gardens, 2011
Installation view (above)
Installation view: Three Shrines for Algernon (overleaf)
The Block, CI Precinct, Kelvin Grove

Photos: Dan Cole





THE REMAINS OF ALGERNON AND THE POETRY ORCHIDS

The Remains of Algernon and the Poetry Orchids consists of the mummified body of the fetal calf Algernon with a live orchid growing out from within his remains. Within the table drawer there is a flask of fixed HeLa cells (the first human cell line established in 1951). These cells were originally grown in a liquid nutrient medium containing fetal calf serum.

This work links to the *A Shrine for Algernon* and comments on the use fetal calf serum in cell and tissue culture.

The orchid and table have been inscribed with two found poems from John Ruskin's *Love's Meinie*

TABLE

The vibration of wings, wings: it is invisible.

As that infinitude of joints, tissues, veins and fibres

that vibrate in the microscopic.

It is given to complete a mesh in the reticulation of the orders of life.

ORCHID

Imagine...

We are a feather

wings and flight



The references to birds within the found poems inscribed on the table and written on the flowers creates a link to the notion of creative flight and becomings, particularly the way in which the death of one organism can give rise to new life and new possibilities.



The Remains of Algernon and The Poetry Orchids, 2011
Mummified fetal calf, living orchid, restored furniture, moss, MDF
Installation detail
The Block, CI Precinct, Kelvin Grove



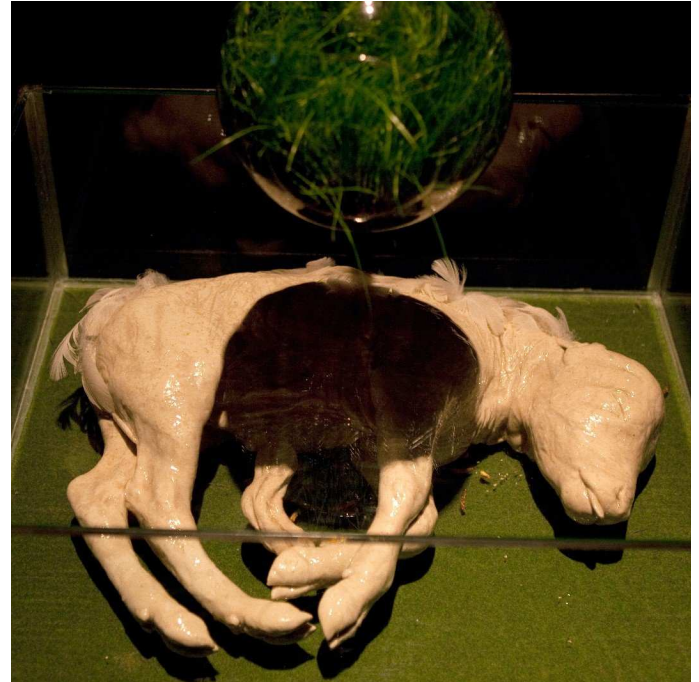




ALGERNON BECOMES A BIRD: Maggot Box

The third shrine included within *Three Shrines for Algernon* titled *Algernon Becomes a Bird* consisted of a resin coated plaster mould taken of Algernon when he was first collected from the abattoir. The back of the sculpture is coated in feathers and displayed within a custom case. The installation also includes living grass and live maggots which crawl out from under Algernon's sculptural form.

The work comments on the cycles of life and the concept of creative evolution.



The Remains of Algernon and The Poetry Orchids, 2011
Mummified fetal calf, living orchid, restored furniture, moss, MDF
Installation detail
The Block, CI Precinct, Kelvin Grove



A CABINET FOR PRESENT AND IMAGINED FUTURES

A Cabinet for Present and Imagined Futures was included as part the exhibition. This instance included live cockroaches as part of the display and was shown in conjunction with a new version of *The Contamination of Alice*.

Subtitled GPF, the new instance of *The Contamination of Alice* consisted of Agar Agar heads of Alice with GFP transformed colonies of *E.coli* bacteria growing over the surface. A UV light had been included as part of the display to render the subtle glow visible.

A Cabinet for Present and Imagined Futures, 2010

Restored antique cabinet, faux moss and grass, dried plants, taxidermy, animal bones polymer clay, stainless steel wire, epoxy, resin

Installation view (previous page)

Installation detail (above and overleaf)

Photo left: Dan Cole

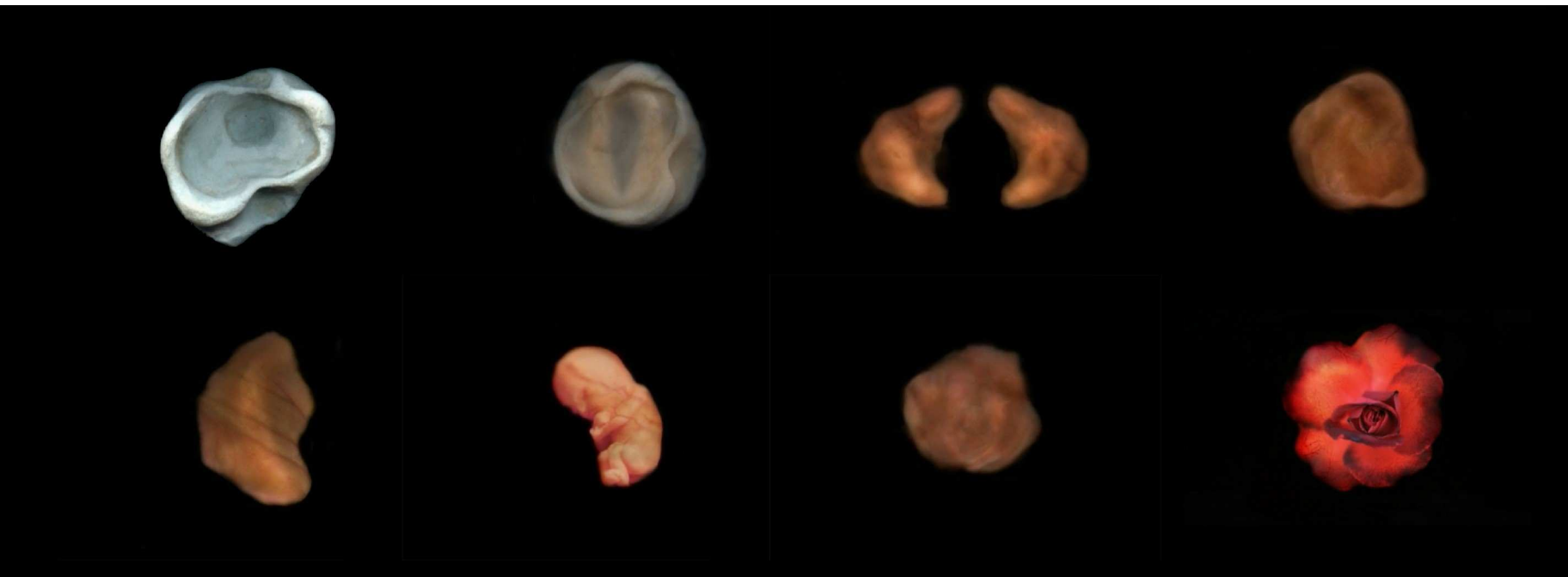
QACI, Kelvin Grove



The Contamination of Alice: GFP, 2011
Agar Agar, UV light, Perspex, MDF, GFP transformed E.coli bacteria
Installation view and detail
The Block, Creative Industries Precinct, Kelvin Grove



The original video *Bone Breath* was augmented to include links to the current instance of Alice. The work was included in the show in the form of two large scale opposing video projections in the main gallery space. The audio component was audible throughout the space and consisted of the sound of breath.



Video stills of altered *Bone Breath* video incorporating elements from *In Process* and *HEK293T*.



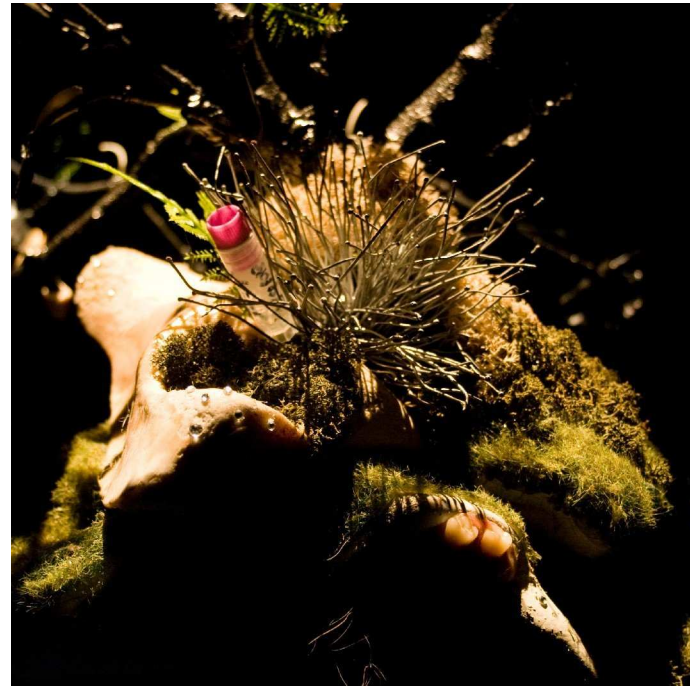
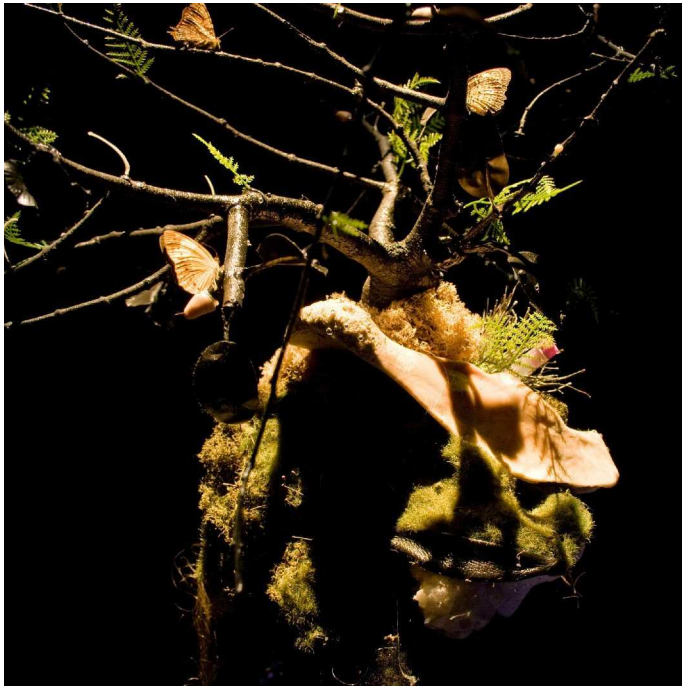
HEK293T Elasticities: The Transformation of Johni or Oliver

As part of this exhibition, the video installation *HEK293T* was refined and re-displayed.

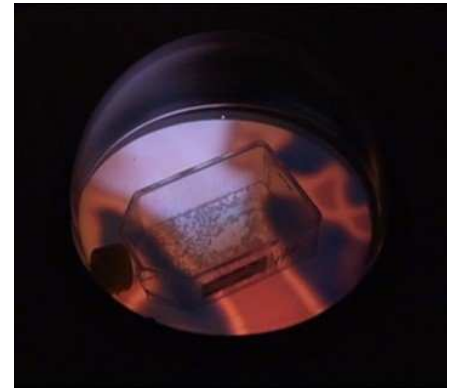
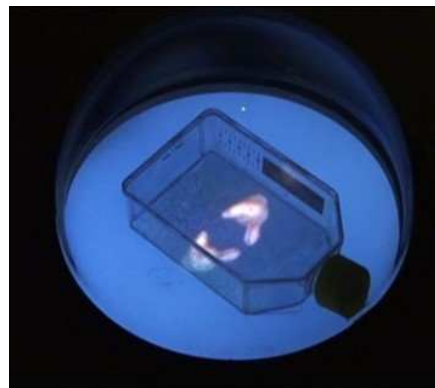
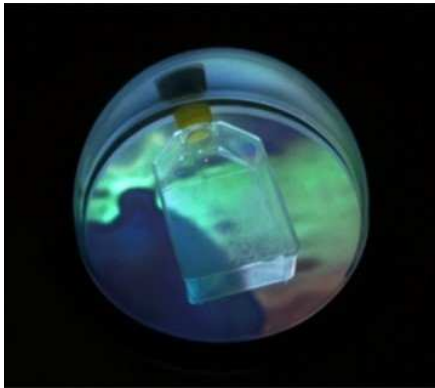
In this instance, it was displayed in a blackened space which created a more unsettling environment for the viewer and enabled the video components to be more easily seen.

HEK293T: Elasticities, The Transformation of Johni or Oliver, 2010
MDF, Perspex, flask containing fixed genetically modified 293T cells, moss, faux grass, wood, plastic, polymer clay, enamel, human and synthetic hair, calf hide
Installation view
The Block, CI Precinct, Kelvin Grove





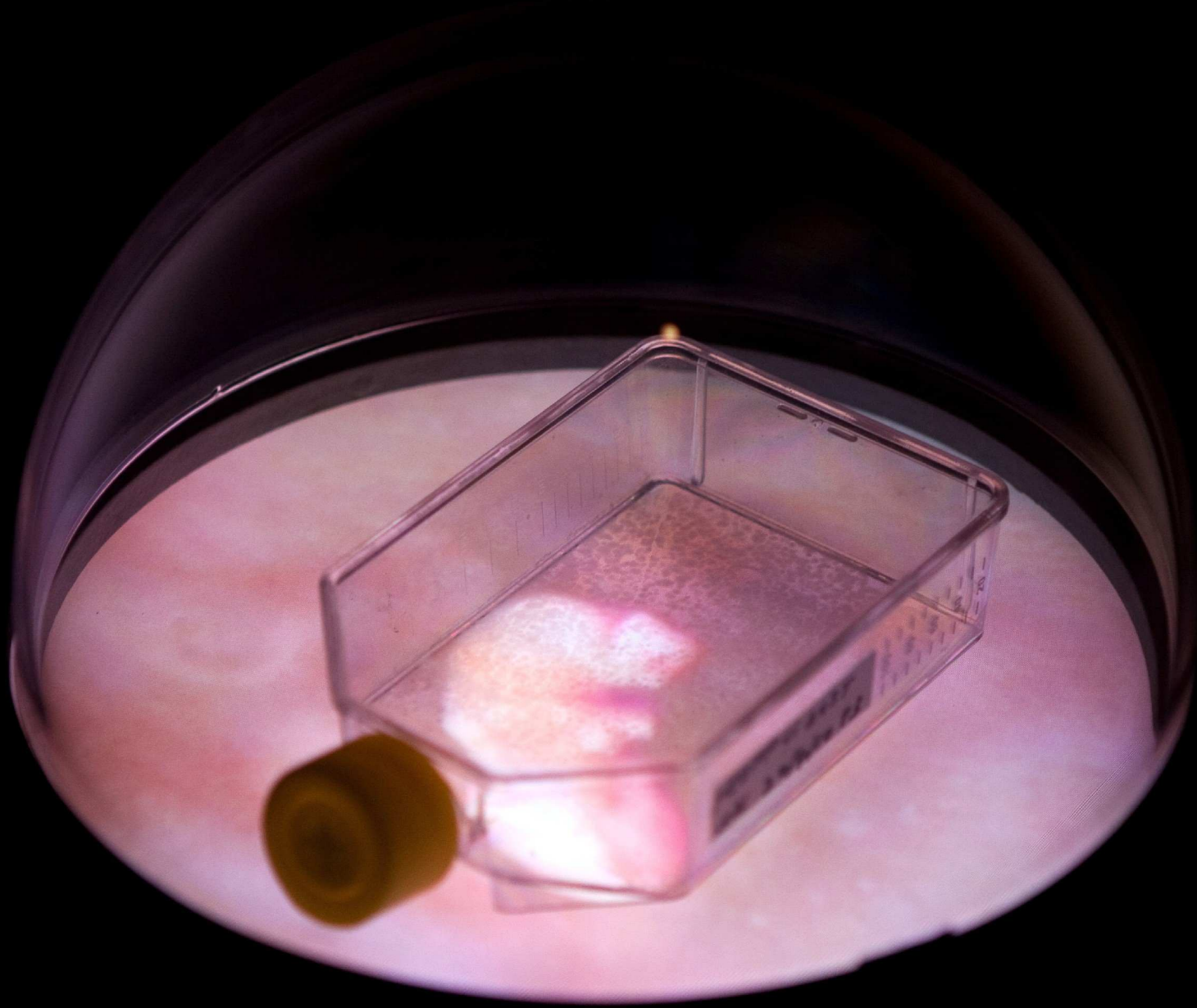
HEK293T: Elasticities, The Transformation of Jobni or Oliver, 2010
MDF, Perspex, flask containing fixed genetically modified 293T cells, moss, faux
grass, wood, plastic, polymer clay, enamel, human and synthetic hair, calf hide
Installation detail of sculptural component (above)
Installation detail of video element (overleaf)
The Block, CI Precinct, Kelvin Grove

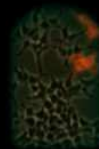


Images of video component (above).

Each video was slightly different to correspond to the transformation of HEK cells with GFP and DsRED proteins.

Image of video stills in sequence (overleaf).





THE INFLUENCE OF AESTHETICS ON ETHICS DEMONSTRATED IN A SPIDER EATING A BUTTERFLY

In this work the original furniture installation *For Alice: Skins and Bones to Hold our Living Nonsense Together* was reworked to include living grass, plant and insect specimens. Retitled *The Influence of Aesthetics on Ethics Demonstrated in a Spider Eating a Butterfly*, the work commented on the impact on aesthetics and cultural values on how we engage with different organisms.

Within the installation, live butterfly chrysalises were included in a terrarium containing spiders. When the butterflies hatched, the spiders consumed them. A leg cast made from an 11-year old girl was also incorporated in the display to link the work to it's previous connections with Alice.

The work also included an audio component created from different echoed animal and body sounds to create an eerie viewing environment.

The Influence of Aesthetics on Ethics Demonstrated in a Spider Eating a Butterfly, 2011

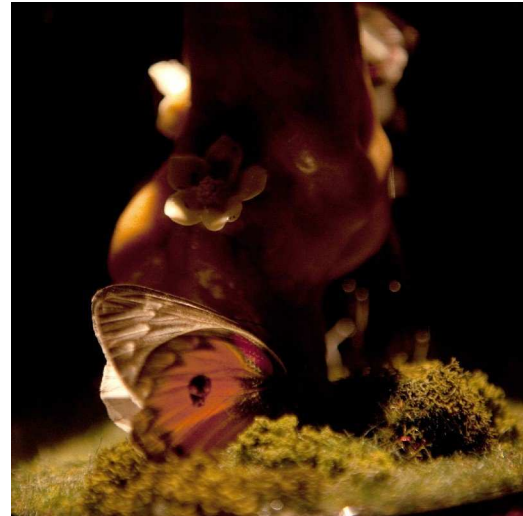
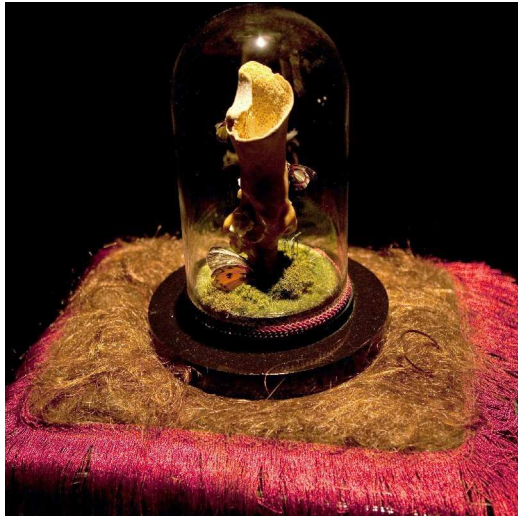
Live grass, live spiders, butterfly chrysalises, live plants, polymer clay, human and synthetic hair, taxidermy butterflies, wood, enamel, sound

Installation view

The Block, CI Precinct, Kelvin Grove

Photos: Dan Cole





The following found poem was inscribed on the edge of the Perspex terrarium to make a direct link to the content of the work:

Aesthetic value cannot be denied.

*Embedded aesthetics permeate moral choice and the experience of the everyday. The aim of
harmony and beauty:
judgements grounded in the eye.*

Care is needed for the uncherished strange.

*The unscenic, even creepy crawly ugly.
Know the unfamiliar and rich soundscape of birdsong.*

Claim no principles of beauty and breathe a non-anthropocentric ethic.



ACKNOWLEDGEMENTS

The development of *The Absence of Alice* would not be possible without the support of IHBI and the input and generous assistance of team members from The Tissue Repair and Regeneration (TRR) and Skin Group within the Cells and Tissues Domain.

I would like to extend a special thanks my my amazing supervisor Zee Upton. Your support, guidance and confidence in my abilities was invaluable.

Special thanks also to Tony Parker who trained me in the fine art of cell culture. You remain my cell culture guru and I will always treasure our conversations.

Special thanks also to Rebecca Dawson, Jacqui McGovern, Derek Van Lonkhuyzen, Brooke Farrugia and Tara Fernandez from the Skin Group.

Thanks are also extended to my Creative Industries supervisory team Dan Mafe and Courtney Pedersen for their ongoing support and input.

I would also like to acknowledge visual arts technician par excellence Mike Riddle. Thank you for helping me with my works

and providing feedback during the conceptualisation stages of project development.

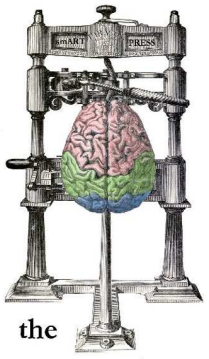
The Immortalisation of Kira and Rama and *HEK293T* were researched and developed during a residency at SymbioticA, the Centre of Excellence in Biological Arts in the School of Anatomy & Human Biology at The University of Western Australia in 2010. Special thanks are extended to Jill Muhling, Lee Khoo, Guy Ben-Ary and Stuart Hodgetts for assistance with the development of projects at SymbioticA. The initial bioreactor prototype was developed in collaboration with engineering students Dusty Tame and John Barnard as part of an ongoing research project of the SymbioticA Research Group (SARG) - The Toolkit. The most recent bioreactor prototype was produced in collaboration with scientists Leo Leung and Tristan Kroll and visual arts technician Mike Riddle.

Thank you to Oron Catts and Ionat Zurr from SymbioticA and all the amazing residents who helped me isolate organs and cleaned up my fetal calf mess.

Thank you Alice, Algernon, Kira and Rama. You will be remembered always and live on in memory and the physical manifestations of your presence and absence.



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