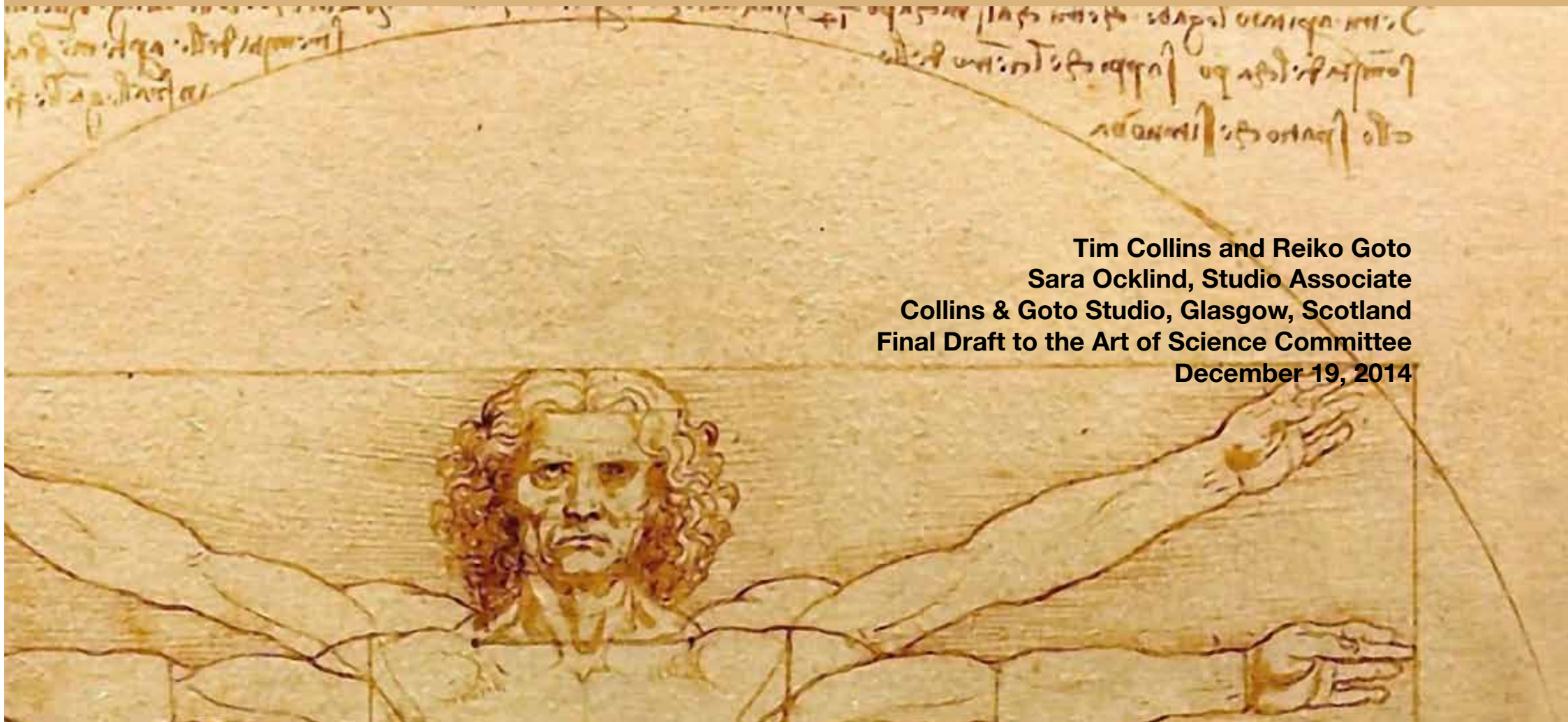




Laboratory Medicine: Arts in Medical Science

A Vision for the New South Glasgow Hospital Laboratory Building

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Final Draft to the Art of Science Committee
December 19, 2014



The Cover image: *Vitruve Luc Viatour* by Leonardo Da Vinci

The Art of Science Committee

Jackie Anderson	- Cytology Service Manager
Bruce Barnett	- Assistant General Manager. Laboratory Medicine
Tomoko Iwata	- Senior Lecturer, Pathology, University of Glasgow
Gordon Lowther	- Consultant Clinical Scientist, Head of Service, Genetics
Grace Macleod	- Genetic Liaison Nurse
Sian Nicol	- Laboratory Business Administration
Victoria Murday	- Consultant Clinical Geneticist
Jackie Sands	- Strategic Arts and Health Coordinator
Edward Tobias	- Prof Genetic Medicine, University of Glasgow

NSG Hospital Laboratory Staff Interviews

Kenny Birney	- Medical Diagnostics IT Manager
Dr Sandra Chudleigh	- Principal Scientist, Molecular Pathology
Dr Tomoko Iwata	- Senior Lecturer, Pathology, University of Glasgow
Jane Gibb	- Assistant General Manager, Blood Sciences
Dr James Going	- Senior Clinical Lecturer, Pathology, University of Glasgow
Katherine Muzack	- Genetic Counsellor
Grace McLeod	- Genetic Nurse
Dr Alison Upton	- Biomedical scientist, Pathology, Electron Microscopy
Margaretha van Mourick	- Consultant Genetic Counsellor
Dr Cynthia Van der Horst	- Consultant Pathology

Ten members of staff were asked a set of questions related to the development of this strategy:

What do you do, how do you spend your time?

What are the indications of health and well being in your lab work?

What are the indications of illness, or potential illness in your lab work?

Does your work have a visual or sensual component?

Does it engage people in ways that require an ethical position?

What is the most interesting thing that you do?

What is the hardest thing that you do?



The South East Entry into the laboratory, public art site 1.

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EXECUTIVE SUMMARY

The Laboratory Medicine: Arts in Medical Science (Aims Project) is a dedicated entrepreneurial initiative primarily focused upon the role that the arts can play in a public discourse about laboratory science in public health and health improvement. The key idea is to bring artists and designers into the building. It is expected that while the collaborative art and science relationships will be forged within the building the outputs are a mix of on-site, on-campus and off-site presentations and performances. Benefit therefore accrues within the building, across the campus and in the wider Glasgow region as the project develops. The AIMS project intends to be generative and sustainable over time. The project has specific goals that begin with micro residencies and small contributions to a public art programme; evolving into significant public commissions and a sustained AIMS research residency. Art in medical science, sciart and bioart are various names for creative practices where artists embrace scientific material or relationships with scientists as a method and means of developing new creative work and practice-led research.

AIMS RESEARCH RESIDENCY

The highest realization of this effort will be found in projects that develop and evolve over years. A long term arts in science research residency will emerge over time. It will be necessary to establish artist - scientist relationships, new institutional partnerships will need to be nurtured and a track record of fund raising and effective delivery of collaborative research and dissemination needs to be established. In the first year a series of exhibitions, performances and seminars will be complimented by select two week explorative residencies where artists and scientists can begin to clarify the potential for long-term research residency proposals to the Wellcome Trust and/or the Research Councils UK. The first residency would occur in 2016 or 2017. The goal is to establish a portfolio of long-term collaborative research that spans art and/or design and medical science; taking best advantage of the existing relationship between the NHS and the University of Glasgow, School of Medicine, as well as research programmes at Glasgow Caledonian University, the Glasgow School of Art, Strathclyde University and The University of the West Scotland.

AIMS PUBLIC ART

This strategy suggests that the public spaces in the laboratory can serve as a place of refuge, a step away from the hospital environment, and as a place of social assembly. In a recent conversation about public art and amenities in the Laboratory Medicine building, the original project architect Raj Deb of Boswell Mitchell and Johnston spoke at length about the importance of the public atrium that defines entrance in the building and the light well connecting the three social spaces in the laboratory side of the building; he was supportive of the idea to site the 'Hippocrates tree' outside the south-east entrance to the building. Finally, speaking with staff there is a genetic counselling public reception area and an andrology patient's room that need attention. The South-Eastern Entry: In the 1980's the Medical Association of Kos, Greece presented a genetic clone of the 'Hippocrates tree' to Professor Malcolm Ferguson-Smith of the NHS Glasgow genetics labs at Yorkhill. The tree when relocated to the south-east entrance to the new laboratory will be a 'first sight' public art opportunity, it should be treated as a symbolic focal point, a living metaphor as well as a historical reference to medicine and its international community. The Atrium: In the short term the building managers are seeking funding for a large format high resolution laser projector which provides a flexible content delivery system that can be simply used as a strategic component of a public artwork, it could be programmed and planned to communicate residency or research outputs or become the infrastructure necessary for a regular curated film programme. Over the long-term and with identification of major funding there is potential to commission a 'signature' artwork for the building working off the wall and/or into the light filled atrium space. The Light Well: Given the three story height and scale impact

of this area over three floors it is only right to think about it as a long term public art effort which is going to require additional significant fund raising. The Waiting Rooms: Staff connected to genetic counselling and andrology clinics have highlighted the importance of softening the clinical feel of the building for patients entering these areas and providing something that is either comforting or supportive. One of the counsellors spoke of the feeling of uncertainty and the need for “something beautiful; something meaningful.’

AIMS MICRO RESIDENCIES

Here the focus is on the internal laboratory spaces, the hallways and offices that are used everyday by laboratory staff. As described in the originating brief for this strategy a specific directive was ‘to consider the staff social spaces that were created on each floor.’ Here we recommend that young artists and designers work with laboratory staff to develop a differential character for each floor, considering the long white wall as an exhibition space. Looking beyond the social spaces to the network of hallways the staff felt a real need to break the monotony of the white walls found throughout the laboratory areas of the building. There is an opportunity to leverage a greater sense of place and community and consider the potential to create some provision of quietness or solitude. We suggest a coordinated process that begins to visualise each field of medical activity; which may evolve into an identity for each area. Structured exhibitions of specific medicine related images can be developed with young artists, We suggest that a service design brief be developed for the entry to each floor to develop the initial legibility one seeks upon entry. In addition to the right of each entry is a long white wall that would benefit from an information designer approach to reveal the scope of professional interests and the identities of the resident scientific, technical and administrative staff.

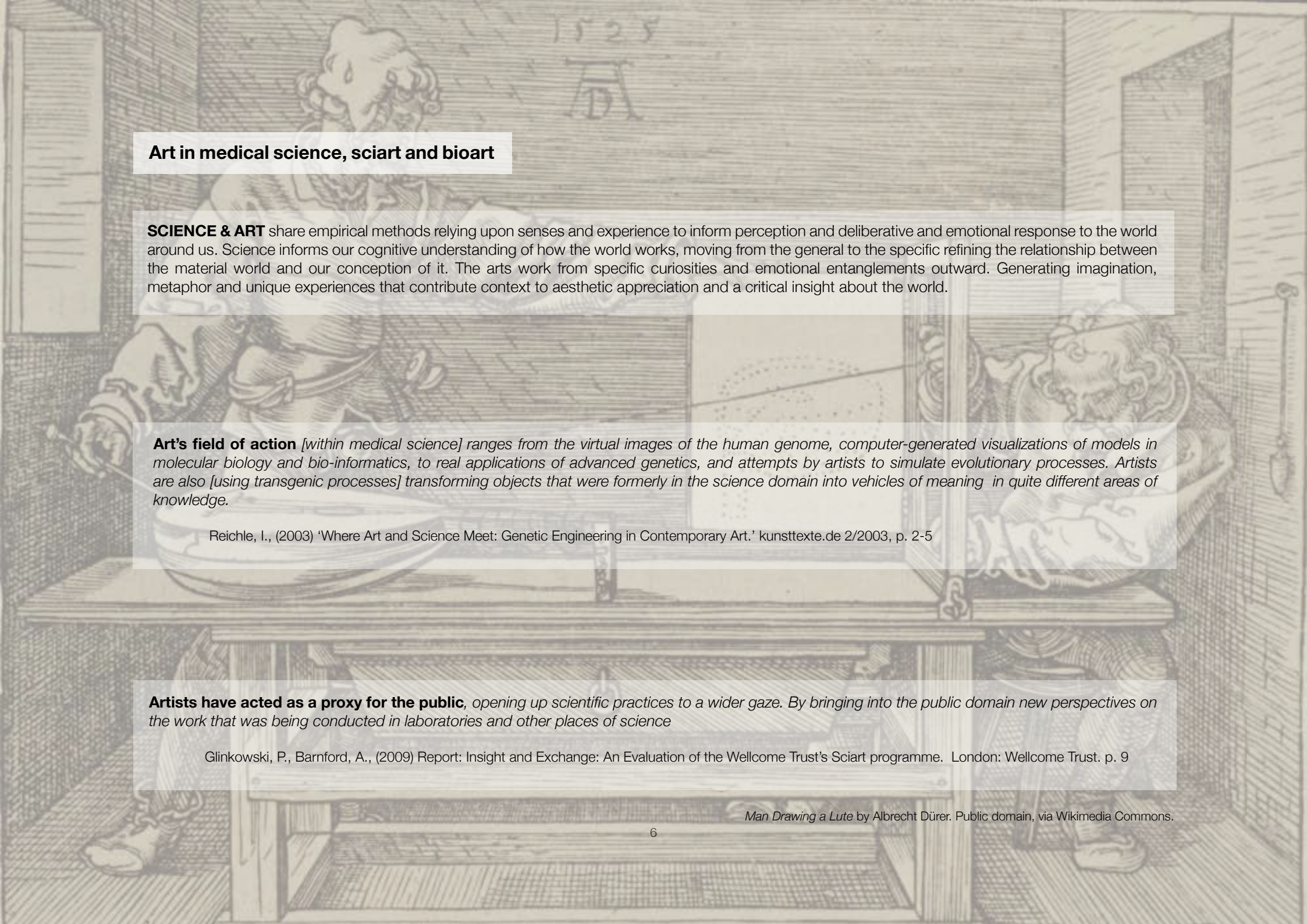
RATIONALISATION

The internal drivers for this project include a need to improve the working environment for staff, but also to contribute to the sense of the building as a hub, with a unique public space and the Arts in science programme with impacts beyond the building itself. The external drivers included the exponential increase in science and technology and the development of personalised medicine. Partnership is key to the success of the programme; good productive working relationships across the campus, the city, Scotland, the UK and Europe must be established if this project is to have the visibility necessary to be successful.

- Strategic relationships will be established with the Hub @ Wellcome Collection and the Sanger Institute Artist In Residency programme.
- Creative opportunities and linkages between this and other NHSGCC and city initiatives will be fostered to build on shared experience.
- Participatory techniques will be built into projects to enable different voices and views to reflect the cultural diversity of the Glasgow region.
- A range of state of the art communication tools and mechanisms will be developed for knowledge sharing, input and dialogue.

RISK and MANAGEMENT

Over five years, the public art programme consists of 56% of estimated total cost; with the research residencies taking up 21% , the micro residencies taking up an additional 8% and the overall coordination and lead artist role at 15%. These are reasonable percentage relationships; the public art programme is the most significant fund raising challenge. The research residency funding requires on-going pursuit in a competitive environment; although there are diverse funding sources. The combination of low cost and young artist experience should make it relatively easily to ensure the micro residencies. The lead artist coordinator post can be a percent ask with each bid, but will require core sustained funding. Year one is the most significant challenge. The future challenge is to refine and sustain the vision. To set up the mechanisms and infrastructure to enable a long-term discourse based public art programme. The steepest challenge of all will be to secure the funding needed to create produce and install significant works of art in multistory spaces.



Art in medical science, sciart and bioart

SCIENCE & ART share empirical methods relying upon senses and experience to inform perception and deliberative and emotional response to the world around us. Science informs our cognitive understanding of how the world works, moving from the general to the specific refining the relationship between the material world and our conception of it. The arts work from specific curiosities and emotional entanglements outward. Generating imagination, metaphor and unique experiences that contribute context to aesthetic appreciation and a critical insight about the world.

Art's field of action *[within medical science]* ranges from the virtual images of the human genome, computer-generated visualizations of models in molecular biology and bio-informatics, to real applications of advanced genetics, and attempts by artists to simulate evolutionary processes. Artists are also *[using transgenic processes]* transforming objects that were formerly in the science domain into vehicles of meaning in quite different areas of knowledge.

Reichle, I., (2003) 'Where Art and Science Meet: Genetic Engineering in Contemporary Art.' *kunsttexte.de* 2/2003, p. 2-5

Artists have acted as a proxy for the public, opening up scientific practices to a wider gaze. By bringing into the public domain new perspectives on the work that was being conducted in laboratories and other places of science

Glinkowski, P., Barnford, A., (2009) Report: Insight and Exchange: An Evaluation of the Wellcome Trust's Sciart programme. London: Wellcome Trust. p. 9

I. Background, Vision and Intention

Background

Over 10,000 NHS and University medical personnel are employed at the New South Glasgow (NSG) Hospital campus. The Laboratories employ over 800 people which includes clinical, scientific, technical support staff and administrative staff. It is one of the largest, most technology advanced diagnostic labs in Europe. Each day thousands of blood samples, biopsies and genetic tests are analysed and reported, supporting clinicians in their diagnostic, prognostic and disease treatment decisions. The laboratories also support the refinement of personalized medicines that target the specific genetic signature of disease. A group of highly skilled genetic counsellors and nurses support patients making personal and familial decisions about the consequences of heritable disease.

The NSG-Lab is equipped with state-of-the-art technology to deliver diagnostic services for biochemistry, haematology, microbiology, genetics, immunology and pathology, creating a centralised multidisciplinary approach to laboratory medicine with enormous benefit to patients now and in the future. Thousands of medical test results are being generated every single day, process and method is constantly being improved to support the best science while seeking quicker turnaround times improving diagnostic output serving both clinicians and patients.

This strategic plan evolved from a series of dialogues with the Art of Science committee, along with interviews with senior laboratory managers, scientific staff, genetic nurses, genetic counsellors and a medical IT specialist; during the discussions strategies emerged;

- A series of curated 'art of science' exhibitions, performances and workshops would create a sense of community through shared experience and learning.
- Establishing a concept plan and a series of relationships leading to long term Arts in Medical Science research residencies.
- The building had significant public space opportunities that suggested the need for an art plan that would reference laboratory medicine.
- The staff felt a real need to break the monotony of the white walls that are found throughout the laboratory areas of the building, while expressing a primary interest in visual images, concepts and issues particular to their areas of medicine.

Vision

The artwork, design and programming described in this strategy will be delivered by the Art of Science committee with the support of the Strategic Arts and Health Coordinator, potentially with the support of an on site lead artist. The recommendation is to develop the **Laboratory Medicine: Arts in Medical Science (Aims Project)**, a dedicated entrepreneurial initiative primarily focused upon the role that the arts can play in a public discourse about laboratory science in public health and health improvement. The key idea is to bring artists and designers into the building. It is expected that while the collaborative art and science relationships will be forged within the building the outputs are a mix of on site, on-campus and off site (public realm) presentations and performances. Benefit therefore accrues within the building, across the campus and in the wider Glasgow region as the project develops.

Art in medical science, sciart and bioart are various names for creative practices where artists embrace scientific material or relationships with scientists as a method and means of developing new creative work. In August 2014 the authors presented an overview of the literature and historic work in the field, examining three dominant methodologies. First there is artwork that involves images and representations, illustrations and sonification of scientific work and data, a set of processes and methods that is evolving towards a culturally critical form of bioinformatics and can be understood within the history of scientific

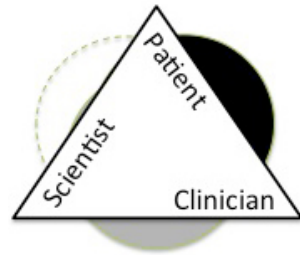
A tailored therapy...

We get 100 to 120 new cases every year. It's very complicated because each patient is having a tailored therapy. We're looking at their specific gene arrangements and we're making targets of them – because we're looking at the molecular level; changes in DNA allow us to set specific targets... this is the way that science is going – medicine tailored to the individual and disease. That's a real buzzword within science, 'personalised medicine', because we have more information on the genome.



The laboratory atrium, public art site 2.

visualisation. The second area that was of interest to the committee was the idea of scientific/material experimentation with aesthetic intent. Sculptural forms and conceptual/material objects that are developed from within the content, culture and material conditions of a scientific laboratory. The third area is understood as critical and ethical artwork, which raises questions about historic conditions and the evolution of ethics and technology. All three ways of working are embedded in our first year introductory programme.



The 'Working Well: People and Spaces' plan by Ginko Projects has successfully supported the patient experience having guided artists and designers on the New South Glasgow Hospital campus using ideas about landscape and images of familiar places. This effort differs in the fact that the laboratory building is already built and public space and patient space is limited. The opportunity embedded in the building is the over arching import of the scientific diagnostics done in the laboratories and the fact that the science and technology making essential contributions to health and well being are essentially invisible. At the same time science and technology are bringing about significant changes to health care. In a recent dialogue with the artist Jacqueline Donachie, she described the traditional relationship between patient and clinician and the consultative relationship between the clinician and the scientist. She suggested that what is missing is a conversation about changing ideas in medicine, which needs to occur between the scientist and the patient. Agreeing with this idea we suggest that the work developed embraces human physiology, biochemistry and genetics. Considering medicine and the body, history, technology and the social and cultural record

as raw material for arts and science collaborations. The intention is to engage citizens in a public discourse about art, science and well being.

Intention

The AIMS project has been developed to be generative and sustainable over time. There are two significant components: one that is focused on a discursive relationship amongst communities within the laboratory building, the other focused upon discourse and interaction with colleagues on the New South Glasgow Campus and members of the general public in greater Glasgow whom this site serves. We have specific goals in mind that begin with micro residencies and small contributions to a public art programme; evolving into significant public commissions and a sustained AIMS research residency, the most significant and costly elements will emerge over a five year time span. This is a shift from art in the public realm in hospital to artists at the heart of a public discourse about science and technology in medicine; this is the unique selling point of the **AIMS project**

1) **AIMS RESEARCH RESIDENCY:** Arts and medical science in the public interest

This long term sustainable research residency will emerge over time. It will be necessary to establish artist - scientist relationships, new institutional partnerships will need to be nurtured and a track record of fund raising and effective delivery of collaborative research and dissemination needs to be established. In the first year a series of exhibitions, performances and seminars will be complimented by select two week explorative residencies where artists and scientists can begin to clarify the potential for long-term research residency proposals to the Wellcome Trust and/or the Research Councils UK. The first residency would occur in 2016 or 2017. The goal is to establish a portfolio of long-term collaborative research that spans art and/or design and medical science; taking best advantage of the existing relationship between the NHS and the University of Glasgow, School of Medicine. There are other significant regional developmental opportunities as well with Glasgow Caledonian University, the Glasgow School of Art, Strathclyde University and The University of the West Scotland. There is a significant history of artists working with medical scientists at the University of Glasgow on these kinds of projects. A number

In spite of everything...

When you talk about all this, it sounds ridiculous – but it is just trying to show people that in spite of everything, they do have strengths and they have to harness that strength and move it forwards at their own pace – not my pace, not my medical condition.

Sometimes I think the only thing that gets me through the day – and again, this sounds really awful as well – bad things happen to good people and today it's not me, and as long as I can maintain my strength, and not be dragged down, I remain sane sufficiently to get me through the day. If I become overwhelmed; if I join them in being overwhelmed, I'm not useful to them.

There were days I would cry all the way home; lie awake at night... I know how to deal with it better now – but I think you can remain compassionate in the moment, but leave it in the house to a degree.



3F



2F



1F



Photo left: A three story light well links three social spaces in the laboratory. Photo right: There are also two patient waiting rooms the upper photograph shows the space used for genetic counselling patients and families on the first floor. Below is the andrology patient room on the third floor. These are all spaces identified as public art opportunities.

of internationally recognized artists and designers with deep roots in Glasgow have been recognized by the Wellcome Trust as well as museums and performance venues around the world for their approach to art, design and medical science. The AIMS Research Residency would be complimented by a similar programme that will be established at the Sanger Institute in 2016.

2) **AIMS PUBLIC ART:** The laboratory as a place of social assembly

There is potential to realise three exciting public space opportunities. The first involves the relocation of an iconic tree, a clone of the 'tree of Hippocrates' presented to the Glasgow genetics labs by the Medical Association of Kos Greece, in the 1980's. This is an opportunity to create a sculptural or interactive relationship that would ground the tree in the art and science ideas that are the key to this strategy. The most significant public art opportunity is the four-story atrium space with one entirely blank white wall and glass roof and end walls. In the short term a large format laser projector has been discussed as a means to animate that space. However over the long term this is a site for a very significant public artwork by a major artist, something that serves as a major public attraction, while engaging human physiology, biochemistry and genetics. The work would also need to take best advantage of the physical phenomenon and social/spatial opportunities in the atrium. Within the counselling 'pod' there is a public reception area that would benefit from a sensitive public art brief. Within the staff social space there is a three floor light well, that floods the lunch areas with light. This would benefit from a long-term solution. There is also an opportunity in the andrology clinic. Development details on this work are found below.

3) **AIMS MICRO RESIDENCIES:** Strategic art and design within the laboratory

Finally we suggest an ongoing series of short-term residencies and commissions with artists, designers and curators hired to work with scientists to produce bodies of work for specific spaces in the building. The intent is to humanise the factory feel of the laboratory, to add an evolving spark of creativity to the long white corridors and improve the cognitive understanding of the building and its services; contributing to the desire to reduce stress amongst staff. There are opportunities in the large social spaces on each floor of the building. Secondary opportunities are found at the entry of each floor and along the stark white corridors that are responsible for the placeless factory feel in the building.



AIMS Public Art Opportunities.



Floor 1 Micro Residencies.



Floor 2 Micro Residencies.



Floor 3 Micro Residencies.



Floor 4 Micro Residencies.

Various images from artists who have worked with medical scientists over time.



Suzanne Anker, SVA Art Lab, NY, USA. An artist that is interested in the visual form, language and cultural references that nonscientists bring to scientific imagery. Top details from a series of high quality prints of stem cells. Photo far left a detail, and near left, an installation view.

What tissues look like...

The unsatisfactory thing, in a way, about histology is that it's two-dimensional whereas real life is four-dimensional: three dimensions of space and one of time, and things happening very constantly – so, histology is two-dimensional. You can make it three-dimensional a little bit by doing reconstruction. You can kind of take serial sections and build up an idea of what tissues look like in three dimensions.



Luke Jerram, Bristol UK. A multidisciplinary artist. Here he has created: human-scale glass sculptures of viruses, bacteria, and other organisms from the microbiological world. The sculptures are derived from scientific images, models, and insights.

Anna Dumitriu, Brighton, UK. Artist specialising in bioart. Her work uses digital, biological and traditional media including bacteria, digital projections and embroidery. Here, the MRSA Quilt tells the story of MRSA (Methicillin Resistant *Staphylococcus aureus*) research and diagnosis through a textile work stained with MRSA bacteria (grown on chromogenic agar) as it undergoes a number of commonly used tests. The final work has been autoclaved and made safe.



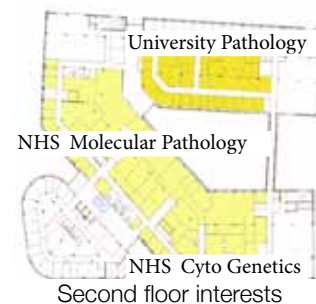
II. Laboratory Medicine: Arts in Medical Science (Aims Project):

Development of the Programme and its Visual, Performing Arts and Design Components

2.1 AIMS RESEARCH RESIDENCY

Overview

The AIMS Project is focused upon the role that arts can play in a public discourse about laboratory science in public health and health improvement. The highest realization of this work is found in projects that develop and evolve over years. The first year of this programme will be dedicated to presentation, review and discussion of previous work done by artists in Scotland, England and Europe. Integrated art in science projects that demonstrate the kind of output and impact that will allow the AIMS Project to accrue recognition within the building, across the campus and over time with local, national and international interests. As discussed previously there are opportunities to realise long-term research and development working with a range of partners. Funding is available through the Wellcome Trust Arts programme and its People programme either/both could support a project. Within the Research Councils UK (RCUK) there are opportunities within the Lifelong Health and Wellbeing (LLHW) programme, a major cross-council initiative supporting multidisciplinary research addressing factors that influence healthy ageing and wellbeing in later life. Research that might lead to improvements in health and quality of later life, Inform policy and practice or increase capacity building in ageing-related research. The National Health Service is a Registered Research Organisation with the Medical Research Council. The initiative involves the Medical Research Council, the Biological Research Council and the Arts and Humanities Research Council.



Talking to the staff and managers in the New South Glasgow Hospital Laboratories it is clear that workloads are significant and time is tight. Despite these facts there is significant support for embedding Art & Design researchers amongst the molecular diagnostics groups on the second floor. There are strategic public discourse opportunities working with the genetic counselling staff and the Medical IT group in the first floor 'pod'. There is an existing culture of research and education with attention to public impact within the resident University of Glasgow Pathology group who are also located on the second floor. The genetics counsellors, the Medical IT group and the University pathologists all contribute to the public realm aspects of contemporary medical science. The University of Glasgow has additional interests on campus with a new research and teaching building that will house the Stratified Medicine Innovation Centre, and the Imaging Centre for Excellence.

Programme Delivery

The R&D strand will develop over a period of one to five years; the programme maybe best initiated by a series of temporary exhibitions and off-site performances with carefully planned seminars to get specific artists and scientists talking together about the value of arts and medicine collaborations. The goal would be to establish a seed bank of ideas and people that might benefit from Wellcome Trust or Research Councils UK funding. In the first year the goal would be to secure funding for the development of a discursive art/science programme that benefits the South Glasgow Hospital campus community in 2015. Over the second to fifth years artist/scientist/designer collaborations should be actively developed and bids submitted to the Wellcome Trust, the Arts and Humanities Research Council the Economic and Social Research Council and the Engineering and Physical Science Research Council.

Points of reference include the just emerging 'Hub' at Wellcome Collection (2014),
A commercial gallery debate in London (2013) and a new publication in New York (2014).

I'm trying to see...

Cells are communicating all the time. There's a constant trading of information going on. They're kind of listening. I don't mean that literally, but they're sensing signals from the environment which they are hopefully going to respond to appropriately, but if their responses go wrong, that's what often leads to tumour formation, or there's something going on like an infection which is eliciting a response that you don't expect to see.

My mind starts to wonder to that level. So I'm trying to see the image but, actually, I'm trying to see what's underneath or what's behind it – OK? So I'm seeing this, but my mind starts wondering. So, you only have to check to see the change between, say, this to this – but what is going on behind it? That explains this change in the molecule.



The Hub at Wellcome Collection aims to:

- enable a truly outstanding interdisciplinary team to work on a project that is linked to our vision of improving health and to support this team with all the rich and unique resources the Wellcome Trust has on offer
- be a pioneering location for creative work that explores what happens when medicine and health intersect with the arts, humanities and social sciences
- nurture a thriving culture of exchange, in which the public is connected to the innovative ideas of The Hub through a vibrant programme of public engagement
- foster work that is original, creative, intelligent, impactful and openly accessible
- catalyse outputs that generate new insights, new forms of engagement, new methodologies, new interventions and new knowledge.



It was seen by some as a virtue of [the Wellcome Trust] Sciart [programme] that the projects that it encouraged and supported seemed to fit better with the 'public engagement' rather than the 'public understanding' model of learning about science. Sciart projects were felt by some of the science educators who were interviewed to allow for a healthy scepticism and a questioning attitude to be developed by the spectator (p. 105).

Glinkowski, P., Barnford, A., (2009) Report: Insight and Exchange: An Evaluation of the Wellcome Trust's SciArt programme. London: Wellcome Trust

Initiating the AIMS Research Residencies, initiating programme year one.

Following a staff engagement and learning model, the first step is to establish a dialogue about the best contemporary art and medical science that is being done in Scotland and the UK today. This process will help to establish indications of interest amongst key personnel in the laboratories who would consider taking the time to develop a research relationship with someone outside their primary field of interest. As discussed above the idea is to develop a series of temporary exhibitions, performances and seminars where the laboratory community can live with the work for a period of time, before a seminar is held to discuss the work and why this kind of cross disciplinary work might have value. Some of the artists initially contacted have expressed an interest in a two week, developmental residency, to see if there are partners they could work with.

Proposal year one: The presentation of small theatre events and workshops focused on projects such as 'HeLa' by Adura Onashile, as well as temporary exhibitions and seminar/workshops engaging artists, designers (and their science collaborators) such as Christine Borland and Jacqueline Donachie as well as the designer Alastair McDonald. Other artists and designers to consider would include Anna Demitriu, Chris Dooks, David Loudon, Rosalind Nashashibi and Marianne Wilde.

Professor Christine Borland, University of Northumbria is internationally recognized for her work with medical scientists. The artist is interested in the conflict between the medical and scientific status of the body as an artificially stable, neutral and regulated site of control and the potential for ambiguity and expression when it is considered from the perspective of the visual artist. The artwork has been funded by Creative Scotland the Arts and Humanities Research Council and others.

Jacqueline Donachie has secured an international reputation for artwork focused upon her familial involvement with Myotonic dystrophy. The initial research was funded by the Wellcome Trust SciArt programme. Ongoing work is the focal point of a current PhD studentship at Northumbria University funded by the Arts and Humanities Council Block Grant funding programme. The artist has also been funded by Creative Scotland. Donachie completes work on her PhD in 2015 and is interested in developing a new body of work in 2016, that references medical science.

Professor Alastair Macdonald, Glasgow School of Art focuses on design research for applications in health and care. He is the design research lead for several inter-disciplinary and inter-institutional projects encompassing health care service innovation using participative co-design methods and processes, and innovative visualisation methods. The Arts and Humanities Research Council (AHRC), the Economic and Social Research Council (ESRC), the Medical Research Council (MRC), and the Engineering and Physical Sciences Research Council (EPSRC) support Professor Macdonald's work. He has expressed a strong interest in the project; has a current working relationship on campus and has a colleague in his research team working on genetic issues.

Adura Onashile has written and currently performs 'HeLa', the story of Henrietta Lacks, a black working class woman, whose cells were taken without her permission in, Baltimore, Maryland in 1951. HeLa is a complex narrative about an immortal cell line and the shifting ethical ground and ongoing impact upon the Lacks family. The performance was developed with funding from Creative Scotland and opened at the Edinburgh Science Festival in 2013 has subsequently traveled to Trinidad, Jamaica, South Africa, Australia and New Zealand. It is Adura Onashile's first solo work. She has provided a budget to present 'HeLa' and has requested a two week exploratory residency with genetics experts.

When I Walk in...

When I walk into this building, I always get a sense of its bigness, and its brightness, it is modern, and it is busy, and it's quite exciting, and there are lots of clever people and I think, "This isn't the world that my patients live in. This is far removed from their reality" – so far – for most of them – not all of them.

Why couldn't we have trees and bushes and flowers and aquariums and a budgie and whatever because they're living and they're breathing! It's all life!



The laboratory atrium shown here (on the left) after sunset is publicly accessible and is filled with attractive light night and day. This is a site for a very significant public artwork by an important artist, something that serves as a public attraction, while engaging concepts of human physiology, biochemistry and genetics. A successful work would need to take best advantage of the physical phenomenon and social/spatial opportunities that occur in this light filled atrium space. The commissioners might also want to ask artists to focus upon the history of medical science and its never ending technical innovation.

Below left and right: an artist illustration of the planned relocation of the 'tree of Hippocrates' at the south east entrance to the laboratory building. The picture on the right shows the south-easterly view which offers no building shadow, resulting in good light in this location.



This tree and its reference to the history of western medicine has previously been the focus of major work by the artist Christine Borland. To bring the tree into the intellectual and creative space of the laboratory, a commission should ask for artists willing to engage the cultural history, the physiological, biochemical and genetic commonalities that exist across all life on earth.

2.2 AIMS PUBLIC ART:

This strategy suggests that the public spaces in the laboratory can serve as places of respite and refuge, a step away from the hospital environment, and as a place of social assembly and public discourse about the relationship between contemporary medicine, art and technology. Public art can also contribute the 'legibility' of a building serving as a threshold experience, orienting the visitor to in some small way to the complexity of contemporary medicine and its exponential technical laboratory innovations.

Programme Delivery

The Eastern Entry: In the 1980's the Medical Association of Kos, Greece presented a genetic clone of the 'Hippocrates tree' to Professor Malcolm Ferguson-Smith of the NHS Glasgow genetics labs at Yorkhill. The tree when relocated to the south-east entrance to the new laboratory will be a 'first sight' public art opportunity, it should be treated as a symbolic focal point, a living metaphor as well as a historical reference to medicine and its international community. The committee is confirming the plan to move the tree and place the tree at one of the 'back' entrances to the building. Following conversations with Anna Baxendale, Head of Public Health and Inequalities, it is important to draw a link between the tree and the labs that goes beyond the nature/culture references. There is potential to engage the genetics, physiology and biochemistry of the tree; as a metaphoric framework. To assure the appropriate development of this artwork a budget needs to be confirmed. Having done so a commissioning process can begin asking artists to embrace the cultural history and genetic relationships, the atmospheric exchange between plants and people as well as a flood of new ideas about plants, awareness, intelligence and memory emerging from biochemistry (Chamovitz 2013, Trevawas 2003, 2005) and ideas about the historic relationship to vegetal life that is now found in philosophy (Marder 2013). The tree becomes a framework for consideration of the interspecies condition, the shared future well being in the age of the anthropocene.

The middle drawing is a curatorial concept sketch for the placement of Christine Borland's sculpture 'Fallen Spirits (2006).' This is a scale model recreation of the metal support structure of the original 'Hippocrates's Tree' in Kos; which could be erected either in proximity to the replanted tree or as a framing device for the Glasgow clone. It is necessary to contact the artist regarding the availability for purchase and potential for permanent display. Since the sculpture was designed as a stand-alone reference to the original in Kos, the artist may decide this idea is inappropriate; or possibly would consider proposing something that adjusts or extends the original work in some way. The bottom drawing shows one of the concept sketches developed by the C&G studio in dialogue with staff and members of the committee while working on this strategy and involves a visual and metaphoric relationship between the real time environmental conditions outside the building, the physiological response of the tree and what an IT manager calls the 'HL7 data' which is produced in real time as genetic lab tests are completed and logged. More details on this concept and an initial plan of work can be found in section 2.4 to follow.



The south-east entrance



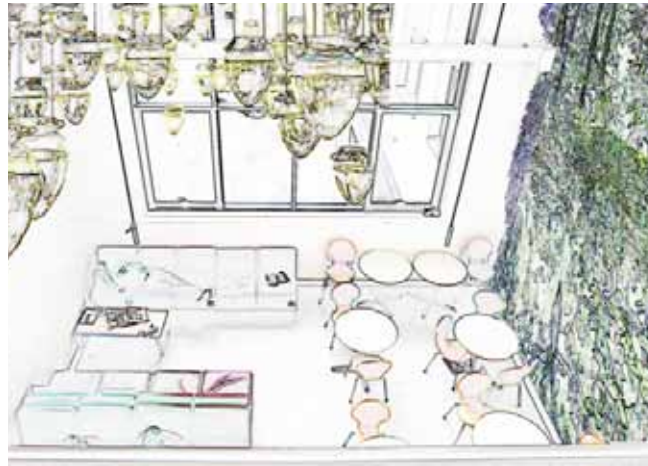
Sketch of potential Borland commission



C&G Studio sketch: A live feed of atmospheric chemistry, sky and tree condition in real time

The most enjoyable...

I'm not sure that it's interesting, but the most enjoyable thing that I do is in relation to the school visits because if I can get out to the nursery and the training school and educate the teaching staff, the children will be so much better equipped to cope as adults because we're all working together – you know, the school teachers, social workers, nurses...



A curatorial illustration of a 'light well' installation with Christine Borland's 'Spirit Collection', (created while working at the Yorkhill Hospital campus, held in the collection of the National Galleries of Scotland) and a green wall on one side as an example to promote imagination about how this space could be handled. There are also fabric options, wall hanging and suspended sculpture options which would take best advantage of this space, and offer some sound attenuation. An open competition public art commission where multiple proposals could be developed would be ideal.



An illustration of the genetics counselling patients waiting room with an excerpt from Jacqueline Donachie's (2002) book "DM" on the wall. A temporary exhibition of a carefully selected series of images and texts would be one way of initiating a broader discussion between artists and scientists at the point where science speaks to the public on issues of genetic disease and the effects on everyday life. Given the age of this text, and the current completion of her PhD she may also have new work to be considered for a temporary exhibition in this space.



The architect's original atrium design plan.

The Atrium: In the short term the building managers are seeking funding for a 12 meter high resolution laser projector which provides a flexible content delivery system that can be simply used as a content / information display. This could be used as a strategic component of a public artwork, it could be programmed and planned to communicate residency or research outputs or become the infrastructure necessary for a regular curated film programme. Over the long-term and with the major funding there is potential to commission a 'signature' artwork for the building working off the wall and/or into the light filled atrium space. As described above this is an important site for a major public competition. Ideally this would involve an international open competition, with funding to develop four or five substantive ideas and a final choice that would take best advantage of a considerable public art budget. This is a site to engage citizens in a public discourse about art, science and well being in the 21st Century, the work needs to take into account the scope and scale of the atrium, the quality of light in night and day and potentially the activities that are going on in the laboratory behind the north wall, and in the management offices and counselling pods behind the south wall. The atrium artwork will provide a symbolic interface to the laboratories and the scientific information that makes up the greater Glasgow 'medical data body' which is expanding 24/7, 365 days per year.

The Light Well: Given the three story height and scale impact of this area over three floors it is only right to think about it as a long term public art effort which is going to require additional significant fund raising. One idea is to 'green' this area of the building, to establish a pair of live plant walls. The empty overhead space could also benefit from a project that hangs from the ceiling, here the Art of Science committee refers again to Christine Borland, and her "Spirit Collection, Hippocrates, 1999" which is owned by the National Gallery of Scotland. There has also been discussions of 'living green walls'; of plant materials. (See illustration on the left page.) Alternatively during the interviews it became clear that amongst the pathologists and the electron microscopy pathologists there is 'imagery' that would yield to an innovative textile approach. At some level it may be possible to develop two opposing images one that imitates a healthy system, and another that displays the breakdown of form and pattern that is relevant to an unhealthy system. To get the art right, a strategic brief would have to be written. To assure that the project has some effect on the relative acoustic problem, specialist help would need to be engaged as well.



The Waiting Rooms: Staff connected to genetic counselling and andrology clinics have highlighted the importance of softening the hospital/clinical conditions for patients entering these areas and providing something that is either comforting or supportive. One of the counsellors spoke of the feeling of uncertainty and the need for "something beautiful; something meaningful." The one point that is entirely clear to us is that anything developed for these areas must include the time for counselling staff to comment during the planning stage and review to be sure the content is right before anything is put on public display. With that cautionary note in mind and thinking in the short term about artwork for the genetic counselling area the staff might consider a temporary exhibition of the personal elements of Jacqueline Donachie's work on Myotonic dystrophy (DM), in particular some of the images and narrative are contained in the publication DM, (2002). As discussed above this would be part of a 2015 exposition of work related to issues inherent in the laboratory and in turn would become the focal point of a seminar on art and medical science. In the long term, work for both waiting rooms should emerge from research initiatives developed along with the

*I don't know what,
that something is...*

*I keep thinking, what would the
families want [for the better], and
every time I think about it, I just
keep thinking, something warm,
something cozy, something safe,
something relaxing and I don't know
what that something is. A bit of
stability within this huge, big, busy,
important building full of busy,
important people.*

*I don't know what this something is
– but something beautiful; something
meaningful; probably something not
very big.*



Above, the entry points into three of the four floors, with view left, centre and right. Although there are signs at the entry, the first step into the laboratory reveals no clear identity or sense of orientation.

The micro residencies can be used to bring artists and designers into two month (forty day) relationships where a challenge / opportunity presents itself. Long empty walls are the definitive experience in the hallways. The are all opportunities for small residency exhibitions open to young artists and designers. Where there is a lead artist or resident artist working nearby they might serve as mentors to support the micro residents in the realisation and exhibition of their work. Where solutions suggest changes that would benefit from additional funds, staff can use internal mechanisms to follow up after the fact.

Right, Empty hallways (some filled with light) can be found on all of the floors of the building. The curved wall is in the counselling pod.



counselling staff. In the long term the counselling area is important as a place where ideas about medical science and its direct impact on the daily life of individuals can be effectively researched with potential for significant output. The counselling area demands work that can be personally engaging and meaningful to patients. It should move across art and the social sciences, attending to the range of social, intellectual and cultural opportunities and challenges that are typical of a state of the art genetic laboratory facility where counsellors attend to a culturally and economically diverse urban and rural population.

Initiating AIMS PUBLIC ART in year one.

As discussed above, the moving of the Hippocrates tree will occur within extant planning and budget mechanisms in 2015. There is also some potential to explore exhibition opportunity within the genetic counselling area, but this is something that needs to be taken on slowly working closely with the counselling staff. Coupled with the AIMS Research Residencies, initiating programme a dialogue amount art in medical science is begun in the first year while the arts of science committee works with the lead artist coordinator to raise funds for more significant work.

2.3 AIMS MICRO RESIDENCIES

Overview

Our focus in this section is on the laboratory spaces, the hallways and offices that are used everyday by laboratory staff. As described in the originating brief for this strategy, one essential goal is to engage the staff and to 'soften the clinical feel of the building.' A specific directive is 'to consider the social spaces that were created on each floor.' Despite similar footprints and an identical mix of lunch tables and soft seating there are differences as you move from the first floor to the third floor; furthermore the fourth floor is unique. The first floor is more utilitarian in feel with lockers and a window in the centre of the social space. In keeping with the discursive approach the artwork is intended to be temporary and dynamic, changing and evolving through the years.

Talking with staff members the project team learned that many felt that the expanse of empty white wall space in the laboratory hallways was boring and disorienting. The authors felt that in every instance the entry to the laboratories was more often than not confused and offered no sense of orientation once you passed through the doors into the lab/office spaces. Working within the micro residency framework, we suggest that there are small strategic residencies that embrace service design, information design and interior design. There is also potential for artist residency commissions with specific scientists as well as resident 'community or social practice artists' working in the social spaces with staff, to bring some creative life to those environments.

Programme Delivery

Social spaces: The social spaces on each floor provide an important opportunity to engage with staff to address issues in the building. One of the questions raised by the committee and interviewees is 'how to make it all a bit warmer, less industrial.' There is an opportunity in the social space on each floor to leverage a greater sense of community and maybe consider the potential to create some provision of quietness or solitude. There are three spaces on floors one, two and three; the first is the light well described under the second framework on public art. The other two spaces are the long white wall in the middle of these rooms and the floor to window alcove on the western end of the room. We would argue that the western window alcove is a place set apart

Empathy...

Yes, that's right. That's why I'm saying, your heart sinks. That was just an hour ago I got those results and it does have an effect. As you say, you don't know the patient, and you never will, but it just feels as if you have empathy.

Sympathy is feeling sorry for somebody; empathy is showing understanding. I can feel sadness for them – but that's not the same as sympathy. Sympathy – there's always some helplessness there whereas with empathy you actually start with a framework. As soon as you can have that engagement with somebody, the framework will start. It may be fragile; it may fall down – but the framework will be there and everybody's frames are completely different and all different colours.



Top: Three views of the large white walls in the social spaces of floors one, two and three. On the fourth floor the social space is unique, yet bland and more complicated, serving as social space and meeting space. A micro residency could help to resolve tensions between utility, sociability and aesthetics.



Middle left: An artist illustration of the “HeLa’ performance, with series of photographs (or monitors) for temporary exhibition in the social space.

Bottom left: Floor to ceiling windows and a small alcove on the northwest end of each social space, provides another art/design opportunity. This could provide a small gallery to present sculpture or props from the ‘HeLa’ performance by Adura Onashile which can be seen in the photographs.



from the rest of the room the question is would it benefit from an integrated effort with a community artist or an interior designer? Is it possible to develop a differential character for each floor, using plants, wall hangings or book cases; maybe some proper couches? Could this alcove be partially enclosed with translucent materials? Could a modern version of a shoji screen create the potential for quietness or some semblance of solitude, without significantly reducing the light quality (or the view of the western sky) in the rest of the room? The middle wall is in some ways the closest thing each floor has to a proper exhibition space. It is maybe the one space where the 'cohesive presentation' required in the hallways gives way to a more experimental and slightly less structured approach to art and science interaction.

White wall spaces: Here we suggest a process that begins to visualise each field of medical activity; which may evolve into an identity for each area. Structured exhibitions of specific medicine related images developed with young artists, working with scientific imagery, scientists and/or technicians. Specific outputs related to the extant framing devices (to be chosen by the committee) to reflect a cohesive visual programme throughout the building, or perhaps cohesive yet unique to each floor.

Redesign opportunities: We suggest a service design brief be developed for the entry to each floor to develop the initial legibility one seeks upon entry. In addition to the right of each entry is a long white wall that could be used to work with information designers to establish a floor-by-floor identity and potentially the professional interest and resident staff details. Within each laboratory space long empty white walls have been identified which contribute to as sense of homogenous lack of place.

Initiating AIMS MICRO RESIDENCIES in year one.

Art: There are some decisions to be made, does the committee want simple images presented with minimal text, or should we consider these opportunities as social, creative, intellectual opportunities that require a more closely curated and examined presentation method? Should the consultation only occur with the committee or is it important to consult with other proximate area staff? Recent discussions within committee suggest that there needs to be more sensitivity to the specific needs of the users of the social space than the white walls in the corridors. It is the difference between the experiences in a room dedicate to staff relaxation versus the corridors of the working laboratory environment. With those differences in mind, either the social space or the white wall areas can serve as galleries where a regular drawing course delivered by an artist working with a pathologist could be exhibited. Dr Cynthia Van der Horst, finds drawing to be a useful practice, the hand eye interaction results in a form that is both pleasurable to produce and at times can be intellectually stimulating and useful as a diagnostic method. Alternately, conversations with Dr Tomoko Iwata revealed two levels of aesthetic understanding that could be explored and expressed in a curated exhibition. A classical (Kantian) aesthetic that responds to what is before her, an open-minded experience, which assigns aesthetic value without utilitarian consideration. She is also possessed of a very sophisticated 'cognitive aesthetic', a medical understanding of form and the interrelationship of forms in her microscopy slide sample allows her to impose an analytical framework that results in diagnosis. Talking to Dr James Going the authors were struck by the depth and breadth of the doctors' knowledge and interest. He was particularly clear about indications of health, versus indications of illness in his work. But was very open to talking about the more difficult cases where reflection with peers is important to finding a proper outcome. It seemed to us that an exposition of the imagery and social interaction embedded in his work would make for an interesting exhibition opportunity.

It produces its own environment...

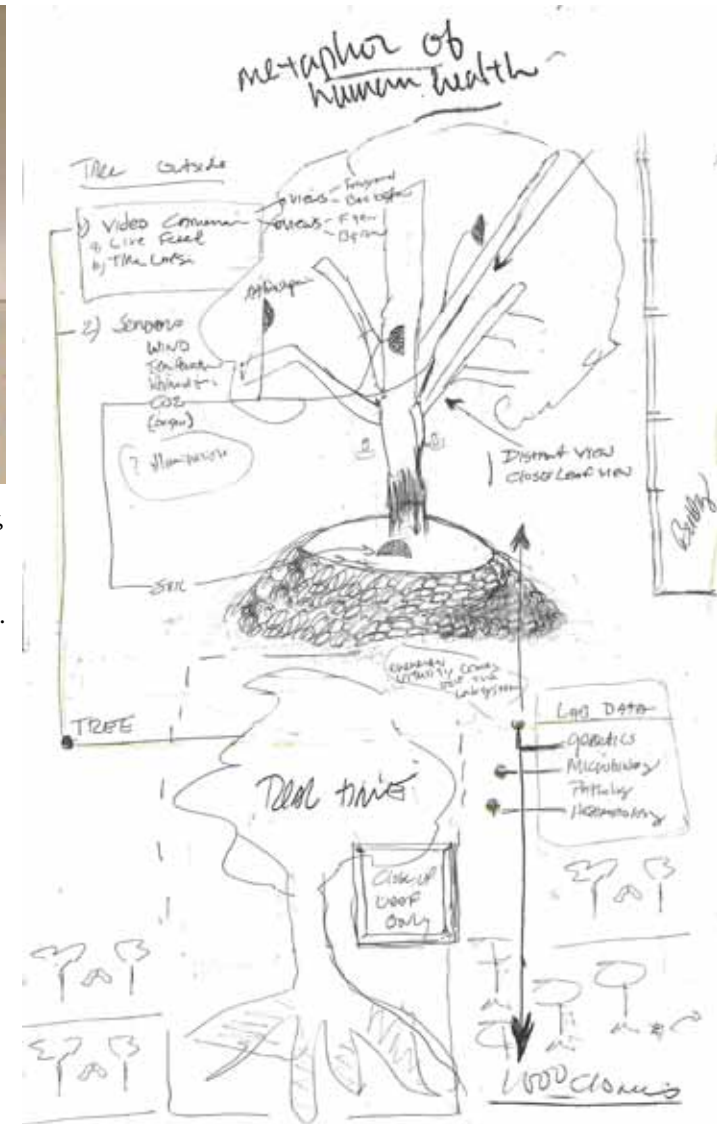
Talking about environmental influences on disease it's the things that we are exposed to in everyday life and the things come internally from us. So when the cell is undergoing biochemical changes (which it does all the time) it produces its own environment and that cellular environment can in itself be toxic; those toxins have to be gotten rid of by the body. You have an internal environment generated by biology then you have the external environment, which includes everything around us. In that case the human body are both effected by [the conditions of nature society, economy and industry] which [like the cells] support health and well being, but also produce various toxins.



Based upon previous sculptural work with plant physiology, Collins and Goto began to make sketches about the tree as a living, breathing organism in dynamic biochemical relationship to the soil, the air, the water and sunlight around it.

Key to the art/science concept is the relationship between real time expression of condition, and the potential for a time lapse vision at the same time through software manipulation.

Talking to the medical diagnostics IT manager was inspiring as he described the day to day effort in the laboratories as a dynamic and responsive data flow, the artists began to understand that there is a data body for western Scotland that is being constructed over time. Sketching these ideas out, the artists began to think about a unique view of the tree from the bottom up (far right.) This eyelike image became a threshold to think about internal and external data and its metaphorical representation, to see what cannot be seen... through the collaboration of art in science.



Design: Aspects of traditional product design, and new ideas about service design and information design would merge with agreed problems that would benefit from a young designer in residence who can launch a programme of potential solutions. The trick at this point in the development of the laboratory building would be to get the right group of people together who are responsible for each area, recognize or at least agree the problem statement and are willing to both consider and contribute to a discourse about design options to resolve that problem. Some may want to participate in the choice of artist/designer and commit to the project as it evolves and comes to fruition. The best projects are integrated with the day-to-day users and are ultimately driven and maintained by them over the span of their presence within the building.

Definitions:

- *Service Design: planning and organizing people, infrastructure, communication and material components of a service in order to improve the quality and clarity of interaction.*
- *Information Design: presenting information in a way that fosters efficient, pleasing and effective ways to engage with it and understand it.*

2.4 Collins & Goto Studio, AIMS Artist in Residence proposal

The Tree of Hippocrates is an important link to the cultural history of medicine and what many consider to be its roots in Kos, Greece which was once the home of Hippocrates. He is considered to be the original voice in western medicine; having set standards of practice and ethics that hold true to this day. The tree is a symbol of his practice and teaching. We propose to develop an artwork that integrates the sensate body and the symbol that is this tree with select aspects of the data body that constantly flows from the NSG laboratories.

- The tree has a complex physiology that functions in situ, its data body is placed.
- The labs process the complex physiology of the people of western Scotland, the data body has diffuse sources which are functionally mobile rather than placed.
- The tree has historically served as a site of public discourse on the topic of medicine.
- The labs are the largest medical testing facility, seeking a voice in a wider public discourse.

The labs possess a clone of the original tree, what does this mean for the future? Data bodies emerge over time, as hexadecimal records they embrace multidimensional conditions. They can be reviewed as evolving experiences, they can be processed in ways that reveal conditions over time. Data bodies can model potential futures. We propose to find the visual and experiential commonalities across these divergent data sets, as a starting point for a new artwork that is a discursive space, concerned with integrative health and future wellbeing. An artwork developed from a real time view of the proximate environment and data flow.



A multi-camera, software assembled view from ground level up the trunk of a tree with the sky in the background. A preliminary sketch.



III. The ARTS IN MEDICAL SCIENCE, Rationale, Management and Funding

The Laboratory Medicine: Arts in Medical Science strategy is focused upon the role that the arts can play in a public discourse about laboratory science in public health and health improvement. As described previously we propose a strategic framework of AIMS: Research Residencies, Public Art and Micro Residencies. The intent is to let the artwork evolve through discussion select staff through regular residency models. In this section we make a case why the labs are the right place to take this approach, differentiating the discursive residency model from a normal public art commissioning process; while providing details on management, delivery, project development and relative risks.

3.1. Why the labs are the right place to do this and why a more than 'art in the building' effort is called for.

The Laboratory building is comprised of over 25,000 square meters, laid out over five separate floors. Haematology, pathology and genetics take up over 85% of the building, The large soaring atrium is the only interior public space with significant public access, although as discussed above there are smaller patient waiting and counselling areas; and a northeast facing light well that links the social spaces, across the three largest floors. The internal drivers for this project include a need to improve the working environment for over 800 staff, but also to begin to contribute to the sense of the building as a hub, with a unique public space and the Arts in science programme, which will have impacts beyond the building itself. The external drivers included the exponential increase in science and technology and the development of personalised medicine through genetic analysis of disease. The lab and its arts in science programme will be developed with an ideal mix of academic and commercial partners, through a mix of public, private and NHS funding.

3.2. Potential Funding and Programme Partnerships

- Potential funders include: Creative Scotland, the Hugh Fraser Foundation, The Nancie Massey Charitable Trust, The NSGH Staff Lottery Fund, Research Councils UK (RCUK), The Robertson Trust, The RSA Residencies for Scotland programme, The Wellcome Trust.
- Potential partners include: Glasgow Science Centre, The Centre for Health Science in Inverness, The Hub at Wellcome Collection, The Sanger Institute Public Programme.

3.3. Management, Delivery and Partnership

Phase 1 of this plan has been overseen by the Art of Science committee in the New South Glasgow Laboratory, which is led by Bruce Barnett and Gordon Lowther with Jackie Sands' support as the Strategic Arts and Health Coordinator. In phase 2 an artist/curator coordinator will be hired to lead and oversee additional artists, community involvement and the mounting of exhibitions of art work. Working closely with the renamed Arts in Medical Science (AIM) Committee to support fundraising in collaboration with stakeholders. In the first year they will begin to formalise relevant partnership to initiate the research and development programme, the public art programme and the creative discourse programme; working with no less than four additional artists. Establishing a series of exhibitions, performances and seminars, and at least two short-term residency programmes while working with partners and the committee to write bids for the 2015 and 2016 programmes.

The Arts in Medicine, AIMS Committee.

The AIM Committee will continue through strategic and diverse membership to steer and approve the development and delivery of the Core arts programme and the programme of projects and residencies. The Artist/curator will be dependent on the committee and the Strategic Arts and Health Coordinator for support and administrative approval for a strategic development and fundraising programme. In the development of this strategy it was agreed that the Public Health and Health Improvement Office was a key partner in the development and delivery of this body of work.

The role of the AIMS Committee will include responsibilities as follows.

- Oversee the development and delivery of the framework programmes
- Approve detailed development of specific projects and artist/designer selection
- Provide spatial and technical requirements as needed for targeted art and design projects
- Facilitate project related stakeholder engagement activity (including community engagement)
- Ensure compliance with good practice guidance on medical ethics, health and safety, accessibility and arts procurement
- Actively support fundraising for the AIMS programme and ensure external and internal partnerships are established to support fund-raising
- Approve and monitor project evolution, evaluation and the development of specific research activity

Delivery criteria

To ensure success, it is critical that the programme:

- Has clear direction and support from the Lab Managers office, the AIMS Committee and the Public Health and Health Improvement Office
- Is effectively connected to the city's academic communities and creative communities
- Is adequately resourced; and at the same time flexible and able to respond to change
- Has the potential to secure external funding through NHSGCC and its partners
- Is able to promote shared commissioning practices with project partners
- Is able to nurture creative approaches to programme development
- Is able to take curatorial risk to promote innovative practice
- Is effectively connected to the city's academic communities and creative communities

Measurement of success

It will be important that the success of the programme is monitored and measured by

- Recognition of that actual projects and its impact on lab and campus staff
- Impact on people outside the laboratory and hospital campus environment
- By the areas engaged, the quality of engagement and value of the outcome
- Perception of the AIMS project before and after specific project effort
- External participation and press review of the programmes

Partnership working

Partnership is key to the success of the programme; good productive working relationships across the campus, the city, Scotland, the UK and Europe must be established if this project is to have the visibility necessary to be successful. It will be important that partnership be expanded with attention to the mutual interest and benefit that allows success. Strategic local partnerships are developed to engage with diverse communities and cultural stakeholders.

- Strategic relationships will be established with the Hub @ Wellcome Collection and the Sanger Institute Artist In Residency programme.
- Creative opportunities and linkages between this and other NHSGCC and city initiatives will be fostered to build on shared experience.
- Participatory techniques will be built into projects to enable different voices and views to reflect the cultural diversity of the Glasgow region.
- A range of state of the art communication tools and mechanisms be developed for knowledge sharing, input and dialogue.

3.4. Risks: the challenges of delivery

The strategy is an ambitious artist-in-laboratories programme that builds regional partnerships and takes best advantage of the range of funds available to support long term work across art and science. It is a strategy that emerges from dialogue with staff and managers within the laboratory itself; it is a strategy informed by interviews and analysis of reference programmes in the south and the art and medical science world wide. That said the unique selling point of 'artists at the heart of a public discourse' may prove challenging to arts funding bodies; being clear about the innovative nature of the programme, reference programmes outwith Scotland and consideration of output and impact will be important.

Funding model. Over five years, the public art programme consists of 56% of total cost; with the research residencies taking up 21% , the micro residencies taking up an additional 8% and the overall coordination and lead artist role at 15%. These are reasonable percentage relationships, the public art programme is the most significant fund raising challenge. The research residency funding requires on-going pursuit in a competitive environment; there are diverse funding sources. The combination of low cost and young artist experience should make it relatively easy to ensure the micro residencies. The lead artist coordinator post can be supported by a percent ask with each bid, but will require core sustained funding.

Year one is the most challenging to any programme. There is no internal or external funding for bid writing or any aspect of the three programmes. This strategy will undergo internal review before it is accepted, before any movement can begin. Strategic 'bridge' support mechanisms need to be in place if the committee wants to see an effort begin in 2015. As currently described above and outlined in the year one budget to follow, the research residency programme is initiated through temporary exhibitions, performances and seminars; the public art strategy is tied to the tree movement and the micro residencies (within the closed lab environments) can be initiated with a small investment.

Solution - work with on-campus partners and funding mechanism to secure three to six months funding for the coordinator. Write a Creative Scotland bid at the first possible opportunity with input from recognised artists and designers. Plan exhibitions, performances and a seminar for fall 2015. Initiate the first micro residency at the earliest opportunity. Work towards the tree/public art opportunity but don't get bogged down with it. Get the first research residency bid written before 2016, explore current RCUK funding for arts, design and medicine research network as another way of moving forward.

The future challenge is to refine and sustain the vision. To set up the mechanisms and infrastructure to enable a long term discourse based public art programme. The steepest challenge of all will be to secure the funding needed to create, produce and install works of art in multi-story spaces.

Initial Budget for 2015-2016

PROGRAMME	Six Months activity	Cost		% Total
Research yr 1	Two concurrent exhibitions w/in building with seminars			
£200 per day	Art, Design, Medicine and Science	3,000.00		
	Seminar cost	1,500.00		
	Marketing cost	250.00		
	Performance & Workshop		4,750.00	15%
	2/3 day run of HeLa	3,956.00		
	Workshop	1,000.00		
	Marketing cost	250.00		
	2 week Residency fee	2,000.00		
	SUBTOTAL		7,206.00	23.00%
MicroResidency				
£100 per day	2/ Two month residencies	8,000.00		
	2/ sets of exhibition materials	2,000.00		
	SUBTOTAL		10,000.00	31.92%
ProjectCoordinator				
£200 per day	Coordination .25 x 6 mos.	6,000.00		
	Web/Video designer	1,000.00		
	SUBTOTAL		7,000.00	22.34%
	10%	2,375.00	2,375.00	7.58%
	SUB TOTAL	31,331.00	31,331.00	100.00%

Potential Funders:

Creative Scotland
the Hugh Fraser Foundation
The Nancie Massey Charitable Trust
The NSGH Staff Lottery Fund
Research Councils UK (RCUK)
The Robertson Trust
The RSA Residencies for Scotland programme
The Wellcome Trust

AUTHOR BIOGRAPHIES

The Collins and Goto Studio was first established in San Francisco in 1985. Presently the studio is located within a state of the art facility, Glasgow Sculpture Studios at the Whisky Bond building just north of the city. Early work was developed around installation exhibition and public art opportunities dealing with urban creatures, habitat and the cultural understanding of water. Over the last twenty years they have sustained a research-based approach to art that has focused on the cultural conditions of environmental change.

Tim Collins is a principal in the Collins & Goto Studio, Glasgow. Tim is an artist, author and planner who has worked across art, science and philosophy, developing artwork, public artwork, and research related to nature and public space for over twenty years. He has worked within a wide range of communities developing methods and practices that take best advantage of art and aesthetics in the public interest. Over the past decade working with his partner Reiko Goto, Tim has been developing sculptural and performative artwork, tools and technologies that attend to the physiological interface between people the atmosphere and forests and trees. They have also begun a new body of work focused upon the relationship between the internal ecology of the human body and the (chemical, material) conditions of the outside world. Tim has served as an associate professor and principle investigator at Carnegie Mellon University before moving to the UK where he was appointed as a Professor of Art, Ecology and Planning and began five years of work as an Associate Dean for Research and Development at University of Wolverhampton. He returned to the studio full time in 2012.

Reiko Goto Collins is a principal in the Collins and Goto Studio, Glasgow. Reiko has sustained a creative inquiry that is concerned with empathic relationships with living things for over twenty years. Recognized for her approach to environmental art and research, Reiko is an artist, a designer and author. Reiko Goto has extensive and diverse life experience, beginning with her role as an artist working with physicists at the School of the Exploratorium in San Francisco California. From there she went on to a role as associate professor of art, then a full time research fellow, within the STUDIO for Creative Inquiry, at Carnegie Mellon University, where she spent ten years thinking about art, aesthetics and planning working with soil scientists and botanists. Having moved to the UK in 2008 Goto decided to return to university as doctoral candidate to consider the role of empathy in art making, particularly in relation to artists working with trees. She developed a sculptural approach to the physiological response of trees to changes in atmospheric composition, with a specific focus on photosynthesis. Reiko continues this line of work considering other life forms and ecological communities. Working within the hospital Laboratory she is interested in human health and the relationship between body and environment.

Sara Ocklind is a research associate with the Collins and Goto Studio in Glasgow. She has undergraduate training in architecture and a post graduate degree from Art, Space and Nature at the University of Edinburgh. She has travelled extensively in Europe and South America. Over the past two years she has moved back and forth between Scotland and Japan where she has developed new work and presented work at exhibitions. She returns to Japan for an artist's residency in Spring 2015.

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