

RMS Vice-President's Fund Award Winner 2010: Progress Report

Background

The aim of this exciting project is to make available to the general public a series of high resolution whole slide microscopic images of cancer together with descriptions of the importance of microscopy in cancer diagnosis, the underlying morphology of different cancers in easy to understand terms and contributions from the public on cancer and how it has affected them. This is called the **CancerScapes** programme.

The coordinating team in Belfast has now recruited i-Path Diagnostics Ltd to host and serve the whole slide images. This requires dedicated software to be able to move around the slide in real time, increase magnification and focus the sample, all via a standard web-browser and available to the world. i-Path

specialise in this software and already host large volumes of virtual slides for Queen's University Belfast (QUB).

Webpage

The **CancerScapes** website will be accessible via www.CancerScapes.org. This will provide immediate access to all of the microscopy resources in addition to links through to the Royal Microscopical Society. A website design is being developed by i-Path and the initial design is illustrated below.

It has been decided to focus on three cancers within the website; one that affects primarily women (breast cancer), one that affects men (prostate cancer) and one that is common in both men and women (colon cancer). Glass slides showing high quality examples of these cancers have been retrieved from The Department of Pathology, Belfast Hospitals Trust. Four cases of each cancer type have been selected to illustrate various patient ages and types. Full clinical and pathological information are available on these cases. These will be used as the core of the **CancerScapes** initiative. We have recruited three experienced pathologists to help build the information on these slides, including annotations and associated fictional patient stories.

In addition to virtual microscopy, we have also decided to include a section on microscopy which will highlight further the role that microscopy plays in cancer diagnostics. This will be written in layman's language so that any readers will be able to understand why microscopy is so important. It will also be used to highlight how recent technologies, such as virtual microscopy, allow us to communicate these benefits through a website such as **CancerScapes**.



We have also decided to add a section on cells. On review we felt that it was important to describe how cancer develops and the microscopic processes involved. This will incorporate images of cancer cells at high magnification and communicate again how microscopy is essential to visualising, identifying and classifying these changes.

Digital Slides

Four glass slides from each of the cancer types (12 in total) have been taken as representative sections to provide a rich virtual microscopy experience for users of the site. These have been scanned at x 40 objective magnification on a Hamamatsu Nanozoomer instrument within the Bioimaging Unit at QUB and will be hosted for on-line access by i-Path Diagnostics.

Users will be able to access these slides remotely from any location and view them freely using a standard web-browser. This gives global access to cancer microscopy within a rich descriptive environment, exposing the general public to the benefits of microscopy in an important aspect of medicine.

The digital slides are currently being digitally annotated to illustrate key features that are associated with the specific cancers under review. Again these will be written in layman's terms to facilitate understanding and appreciation of cancer microscopy and the importance of seeing cells and tissues.

Outreach

Finally, letters have gone to the Heads of Biology and English Departments to all the schools in Northern Ireland to request contributions for the website. The team has experience in running a microscopy-based schools challenge in the past under the auspices of The Princes Trust. We expect an equally positive response from schools on the current project. In addition, local cancer charities (Ulster Cancer Foundation, Action Cancer) along with national ones (CRUK) have been approached regarding their active involvement in this novel initiative.

Bringing these various strands of activity together into a coherent **CancerScapes** website will be challenging but once completed will provide a very

strong public science interface. We don't intend for the project to stop after this initial phase of development. Over time, we suspect that further microscopy based resources can be added to make this a highly valuable resource for entertaining, informing and provoking the general public and their views of science, pathology and microscopy.

Dissemination

We are in discussions with the Royal College of Pathologists about having a dedicated link to the **CancerScapes** project from their National Pathology Week (NPW) website. This will significantly raise the profile of the **CancerScapes** initiative and the RMS with the general public and NPW participants. This includes school children, colleges, universities, local government, charities and health professionals.

We will also explore the potential of hosting **CancerScapes** via the Pathological Society website. This is a well established portal for accessing a wide range of information on pathology – principally aimed at pathologists and scientists but with a comprehensive section for the general public. Approval will be sought to add **CancerScapes** to this section.

In addition, we would propose to coordinate a nationwide press release on the **CancerScapes** initiative through the RMS and QUB press offices. i-Path currently send out an e-newsletter to 4000 pathologists and scientists globally, every month. Following approval from the RMS an article highlighting **CancerScapes** will be distributed via this distribution list.

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Further links:

- <http://www.actioncancer.org/>
- <http://www.ulstercancer.org/>
- <http://www.leukaemia-ni.org/>
- <http://www.i-path.co.uk/>
- <http://www.cancerresearchuk.org/>
- <http://www.qub.ac.uk/schools/BioimagingCoreTechnologyUnit/>