 Scottish Association of Histotechnology

Issue 4 Spring 2023

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| sAVE THE DATE!!!  We are pleased to confirm the date of the 44th Scientific Meeting will be Friday 9th June 2023 at the Golden Jubilee Conference Centre, Clydebank. Topics to be presented include PDL1 markers & gastric cancer, multiplex IHC, QuPath, IBMS leadership and more tbc. |
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Modern rotary microtome

# Welcome Delegates and fellow Science enthusiasts,

Welcome all to our Fourth Association of Histotechnology (SAH) newsletter.

The Committee and I would are excited to invite you to our 44th Scientific Meeting which will be held on June 9th 2023! This years’ event will be held at the Golden Jubilee Hotel in Clydebank.

Updating from our call for committee members last time, we would like to extend a warm and grateful welcome to new member Helen Caldwell.  There are still positions available for anyone interested in joining the SAH Committee which includes named roles and support members. Please do email one of the Committee Members or the generic email address [sah.generic@lanarkshire.scot.nhs.uk] if you would like some more information.

 And with that, I would again like to thank you for your continued support and feedback which allows us to organise and host these events. We look forward to seeing you all in June and wish you a happy and sunny springtime in the meantime.

Louise Leslie   
Specialist Biomedical Scientist   
Scottish Association of Histotechnology  Committee Chair 



# Image analysis VALIDATION – A USER EXPERIENCE

There is a lot of excitement around the potential uses of image analysis (IA) software in digital pathology, such as QuPath, Definiens, Halo. But how does one go about training and validating such software for use in IHC scoring, and have confidence in the results?

Our research group has a long history of validating IA software for use in the automated scoring of breast cancer biomarkers, in large phase 3 clinical trials. This is how we do it:

1. **Image capture:** Review slides to check staining is adequate, the coverslip is clean and no air bubbles. Scan slides with a 4x pass for scanning area selection followed by a 40x pass. Export TIFF files of the target region at 10x magnification.
2. **Image data:** Manually assess all images using a microscope to generate the results per image/case that the IA will be compared to during training and validation.
3. **Training phase:** Using a subset of digital images, begin training the software for accurate region of interest (ROI) detection followed by cell detection and cell classification. Compare IA results to manually assessed results for training images. Aim to get correlations between IA and manual observer of above 0.85.
4. **Validation phase:** Once training set shows promising results, validate IA algorithm using another set of images, e.g. 600 cases, in triplicate). Compare IA results to manually assessed results for validation images. Aim to get correlations between IA and manual observer of above 0.85.
5. **Post-Analysis QA**: Perform a post-analysis QA check on ALL validation images, assessing accuracy of ROI detection and cell classification. Make note of the ‘FAIL QA’ images – was the fail due to poor staining, artefacts etc. or is there a consistent failure in the IA software to exclude immune cells or correctly classify DAB positive cells? If a ‘tissue’ fail, exclude from validation data. If a software fail consider if further iterations of training are required.
6. **Documentation**: Complete validation documentation and write SOP for future use.

We perform a 10% manual QA on all images analysed by IA software and eyeball all analysed images to detect ‘obvious’ fails. Not all IA software has accurate ROI detection so manual annotation may be required. For further information/ discussion please email [tammy.piper@ed.ac.uk](mailto:tammy.piper@ed.ac.uk)

# Meet the committee

**Q: Name and occupation**

A:  Helen Caldwell, Histology Lab Manager, Institute of Genetics and Cancer, Edinburgh

**Q: How long have you worked in pathology?**

A:  A verrrrrrrrrrrrrrrrry long time, I started in June 1991!!

**Q: What’s your least favourite lab task?**

**A :**Making up lab solutions.

**Q: If you didn’t work in a lab, what would your ideal job be?**

A: Hard question as lab work has been what I wanted to do since leaving school, but otherwise I wouldn't mind job in travel industry where I get to travel to different places all over world.

**Q: Finally – pineapple on pizza? Yes or hell no?**

A:  I don't mind it although I much prefer pizza with a bit more spice.

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**THE SAH committee NEEDS YOU!!**

The SAH committee is looking for new members to join us.

Time commitments are less than 1 hour a month on committee business, 3x meetings a year (2x via TEAMS) at 2 hours each and the annual Scientific meeting.

Most committee business is completed by email with the busier periods being April-June, in the run up to the scientific meeting, held early June.

Committee roles are fleixble, the only named one urgently needed is a social media manager

Can you spare 15 hours per year to help? Curious? Email to find out more!!

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| Puzzle corner - ANAGRAMS   |  |  | | --- | --- | | 1. errol waspish 2. ah charmert 3. barney tunes 4. advising ghastly 5. perching snick | 1. asproves 2. balkan hyoid 3. balmgin 4. prox sequining 5. diffsload |   Clue: spring (NB: Answers to Issue 3 anagrams on SAH website) | **Contact us!!**  **Email:** sah.generic@lanarkshire.scot.nhs.uk  **Website**: www.saht.org.uk  **Twitter:** @ScottishAssoci1  **Instagram:** scottishassociationhistotech  **Facebook:** @www.saht.org.uk |
|  | Recipient Name  Street Address City, ST ZIP Code |