DOS Histology Core Rigor and Reproducibility Statement

In accordance with the National Institutes of Health policies on rigor and transparency in research, we propose the following:

Experimental Design
- Consult with HRC Lab Staff in the planning stages.
- Design your experiment with sufficient controls and replicates.
- Ensure that all of your reagents (e.g. antibodies, cell lines, and genetically modified animals) are fully validated.
- Create a clear and detailed SOP that can be reproduced. Assure that the protocol is strictly followed or that any deviation is well documented.
- Ensure all staff or students involved in the experimental process are well trained and understand each step and the importance of performing them precisely.
- SOPs and other detailed protocols are available from the HRC upon request.
- Detailed descriptions of experimental procedures, including sample processing and antibody specifications, are documented electronically and manually.
- All documentation and data relating to experiments are stored in a safe data management repository.
- Acknowledge the Department of Surgery Histology Resource Core and core staff. (Acknowledgement statement can be found on our iLabs home page).

Histology, Staining, and Antibodies
- Staining protocols in HRC are optimized on freshly sectioned or properly stored control tissues.
- If available, we recommend using highly validated antibodies that are approved for In Vitro Diagnostic Use (IVD).
- If such antibodies are not available, we recommend using antibodies from vendors who provide information about antibody specificity based on the current requirements.
- We also recommend using antibodies that have been validated by HRC on previous studies (HRC keeps complete information of all antibodies used in the lab such as host, clonality, vendor, catalog #, lot #, concentration, storage conditions and use date).
- All reagents and antibodies provided by the HRC are from established vendors, and we encourage clients to validate their antibody selection through an antibody comparison site such as The Human Protein Atlas, citeab.com, The Antibody Registry.
- For large IHC projects continuing over several years and requiring the staining of study slides in batches, we recommend using only monoclonal antibodies, as such antibodies have less lot-to-lot variability. To reduce the variability of IHC stains caused by different lots we recommend, if possible, using the same lot of the antibody for the entire project.
- We do not recommend using polyclonal antibodies for large epidemiology projects even if the antibody is well validated, because polyclonal antibodies have high lot-to-lot variability and very often they have been discontinued.
- When possible, all samples from a single study are stained as a unified batch and with the same lot of reagents.
• We recommend using the same positive control tissues for an entire project.
• Negative controls are included for each staining run. Negative controls run by HRC do not include a primary antibody, which allows us to check any background staining associated with the secondary antibodies and enzymatic reactions.

Instrumentation:
• All instrumentation in the HRC is QC’d daily by staff according to the manufacturer’s instructions.
• Preventative maintenance of instruments used at the HRC is conducted regularly.
• Equipment service contracts are maintained through Epedia and Leica.
• All instrumentation is subject to weekly deep cleans.

Staff Training & Expertise
• All HRC Staff are certified histologists.
• All HCR Staff participate in continuing education through internal and external training opportunities, webinars, and seminars on a regular basis.

Acknowledgements:
https://unclineberger.org/pathologyservices/rigor-and-reproducibility/
https://cgibdhistology.web.unc.edu/rigor-and-reproducibility/
https://histologyresearchcorefacility.web.unc.edu/rigor-and-reproducibility/