

 **58th Annual Scientific Meeting**
American Society of Cytopathology

Call for Abstracts

The American Society of Cytopathology Scientific Program Committee invites you to submit abstracts for the 58th Annual Scientific Meeting

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It was a great honor to receive the American Society of Cytopathology New Frontiers Award, and it was a pleasure to give an address at the ASC 57th Annual Scientific Meeting about the future of cytology in the context of emerging technologies.

I think we should talk about this from as many angles as we can find. I was trying to come up with a new way to present the ideas from my talk for this paper when a friend mentioned that she had recently seen a high-school musical production of *The Wizard of Oz*, reminding me that some stories only get better in the retelling and some themes seem to grow with us without growing old.

The Wizard of Oz was made into a movie in 1939, times like these in many ways. Most of the film is a dream sequence relating a young farm girl's adventures in her own new frontier, a place both magical and threatening. "I don't think we're in Kansas anymore, Toto," Dorothy tells her dog. And indeed they are not.

Despite powerful adversaries (flying monkeys, wicked witches) and horrific terrors, Dorothy triumphs. She follows her path, the yellow brick road, with the help of partners she finds along the way: a tin man who wishes for a heart, a scarecrow in need of a brain, a lion who longs for courage.



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In the end, her friends learn that they always did have the heart, the smarts, and the nerve to pull it off; they had needed only a reason to summon their talents.

So what are the bricks on our yellow brick road to transformational roles in an era of new technologies?

The coming change is in the details – how we approach the cell, which techniques will prove durable, what new tools we will use.

Things we know

First, cytology is our domain. It is also the lynchpin of efforts to gain deeper knowledge of disease processes. Cytopathology and cytotechnology have been practiced in much the same way for a long while. The coming change is in the details – how we approach the cell, which techniques will prove durable, what new tools we will use. We will continue to screen for deadly disease at the cellular level but new technologies will enable us to learn much more from each specimen. Transformation isn't about the tools that we use to apply our skills, but rather applying our talents in new ways.

Cytological characteristics will continue to be used to narrow diagnoses, but ancillary tools (immunohistochemistry, molecular methods, cytogenetics, gene profiling) will be increasingly employed for serious diagnostic problems. Molecular and quantitative methods can provide amazing opportunities, but if we fail to accept them, cytology as a subspecialty will eventually fade away. Circulating tumor cell technology and flow cytometry are legitimate tools of cytology. Why are these tests not part of many laboratories now? Why do we insist upon one fixative or a couple of stains? Why do we duplicate body fluid cell analysis in anatomic and clinical pathology laboratories? These tools should be brought together within the cytology laboratory.

We must remember, too, that if we allow differences about details (and tools are nothing more than details) to divide us, other medical specialists will take possession of these new technologies. The ball is in the air right now; if we drop it, someone will surely pick it up. One way or another, our patients should have access to all that medicine has to offer. If we decline to work with new technologies, someone else will. Other specialists may not have the encyclopedic knowledge of cytology that we would provide, but the new tools are here to stay.

A skilled cytotechnologist can look at a slide and see patterns that would escape 99% of the population – patterns that will enable a critical early diagnosis. The cytotechnologist whose extraordinary talents of discernment have saved lives through microscopy will have opportunities to save lives with new tools. Same talents. New tools. More lives.

The cytopathologist whose role was once almost exclusively diagnostic will be redefining that term as new tools emerge. A “complete” diagnosis is already beginning to embrace advice about treatment alternatives and prognostic indicators. He or she will be integrating far more fully as members of the patient care team, collaborating with oncologists to monitor patient progress. Cytopathologists and cytotechnologists are doing these things right now. They are our pioneers on the new frontier.

Pioneers aren't supposed to be comfortable

All new advances do not always benefit everyone; they sometimes have, or are feared to have, inadvertent effects. For example, the new HPV vaccine, which is expected to bring about a welcome decline in cervical cancer, has prompted some concern that Pap tests (and the need for those who read them) will be soon obsolete. I doubt that. While it is true that an effective vaccine, coupled with molecular diagnostics, is likely to exert downward pressure on Pap test frequency, the change will be gradual. As we move away from Pap tests, we will be devoting more time to screening for other types of disease detectable for the first time at the cellular level. An effective vaccine that translates to fewer Pap tests will be good news for our patients and also for us, because it will free

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us up to do so much more.

Advances in technology are providing access to important new knowledge about changes at the cellular level, knowledge that we are uniquely qualified to employ on the behalf of our patients. For many of us, it's all good; we are eager to begin. Others dwell on real and perceived threats to traditional practice; for them, learning new tools is a little scary and uncomfortable. Yet I think all of us know in our hearts that this is our path.

When I thought about what might go into a new frontiers lecture, I thought of the picture books I read as a boy about the Old West, stories about covered wagons that carried pioneer families out West. It must have been more than a little scary and uncomfortable, risking everything to press forward. Yet, in their hearts, they knew it was what they were meant to do.

Frontiersmen were not intellectuals or politicians. They were people with a vision. They saw themselves in an unknown place, taking ownership of the land, starting a new life. Some of them died in pursuit of that vision. Then, as today, when danger came they circled the wagons. Then, as today, the pioneers were pierced by arrows. Some ran out of food. Others lay down and died along the way. It must have been at once scary, exciting, and uplifting. The men and women who survived the journey are the heroes and heroines in our children's picture books.

Not everyone chose to seek the new frontier, just as not everyone is eager to embrace the challenges that new technologies present. But most of us, I hope, will look into retraining and other educational options that will prepare us to take advantage of opportunities to grow. Lifelong learning raises the bar for all of us.

New opportunities will strengthen the partnership of cytopathology and cytotechnology. Perhaps we will circle the wagons for a bit, long enough to encourage those who are most reluctant to "get out of their comfort zone," as the kids say. But I know that we will encourage one another and foster confidence in our collective ability to step up and learn new skills. This is our time to change together. This will be how we lead.

The talents that set us apart will continue to be needed. A skilled cytotechnologist's locator skills, patience, efficiency, and natural curiosity will be much in demand regardless of the tools that he or she employs. Cytopathologists will continue to bring knowledge of tissue patterns and clinical relevance to their work, participate in conferences and tumor boards to highlight clinical-pathologic correlations, and help others to also focus on pre-analytic and post-analytic quality.

In conclusion: The cell is your sandbox

As cytopathologists and cytotechnologists, the cell is our sandbox; it's time we dig in. New technologies that will yield insights to the interior of the cell will dramatically enhance our value to the patient. Molecular and quantitative technologies are part of our armamentarium for a reason: we know best what best to do with them.

The future of cytology will involve new ways of exploring the cell. It will introduce new methods to isolate malignancies sooner, identify them far from the source, and perhaps stop them in their tracks. Cytopathologists and cytotechnologists are uniquely suited to escort these new tools from bench to bedside; this is our calling.

Every new diagnostic instrument takes us farther from the traditional notion of intuitive diagnosis and for the most part that is a good thing. Pathologists have a traditional responsibility for quality assurance. We sometimes have a duty to point out that while there is sometimes no substitute for evidence, not all circumstances call for the most expensive or complicated tests. Protecting quality for everyone means intelligent use of resources; sometimes that will mean that less is more.

Big-picture thinking is another great theme from *The Wizard of Oz*. Anyone who has seen the

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movie will remember the song that it made famous, "Somewhere Over the Rainbow." It is helpful to remember that the only way to see a rainbow is to straighten up, step back, and look beyond the task at hand (or under the lens). For those who love cytology and appreciate its importance, looking beyond the task at hand is the task at hand.

Dorothy encounters two crystal balls on her journey; they reveal less about her fate than about what was on her mind. The message there, I think, is that those who might influence our future can only work with what we give them. If we see ourselves learning and growing, there's a pretty good chance that's what they'll see too, and opportunities will follow. At the end of the day we will find ourselves where we saw ourselves going.

If we were to look into a crystal ball and ask it to show us the future of cytopathology, I think we would see cytopathologists and cytotechnologists side-by-side, close to patients and other clinicians, beaming with pride beside their shiny new toys with the rosy glow of a group with the heart, the smarts, and the nerve to make it happen. Commitment to our patients is more than enough reason to summon our talents. We're not in Kansas anymore, but we can be pioneers. Beginning today, let's show them how it's done. ■

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