

## INTERVIEW WITH EXPERT CHIEF SCIENTIST, MIKE MURPHY FROM INTERTEK PHARMACEUTICAL SERVICES IN WHITEHOUSE NJ

**INTERVIEWER:** Intertek Pharmaceutical Services laboratory in Whitehouse, NJ is an FDA and DEA registered GMP compliant analytical laboratory specializing in complex and routine services to support the development, drugs, formulations, devices, and drug delivery systems for pharmaceutical and biotechnology companies.

We want to get to know the people on the scientific team who helped to make it all happen. Today I'm sitting with Michael Murphy. Mike is our chief scientists in our elemental impurities lab. We'll be sitting down to ask Mike some questions about his field of expertise and his career.

Mike, what are some of the main responsibilities and how do you help your customers tackle issues that they are facing?

**MIKE MURPHY:** My number one responsibility is to listen to the client's need and help direct them to the proper analytical technique methodology that will solve their particular issue that they're facing. It's not always just elemental impurities, and so sometimes there are other aspects we have to pull into the analytical testing in order to find the proper and the best technique that will solve their problem.

**INTERVIEWER:** Mike, you specialize in elemental impurities and you've been in the field conducting this type of work for about 28 years. Can you tell us a little bit about how the field has changed since the start of your career and where you think you see it going?

**MIKE MURPHY:** The biggest thing that has changed, of course, I would say overall is the robustness of analytical procedures. Procedures are much more robust now than they were when I first started 28 years ago. System suitability now is much more rigorous and you need to be able to depend upon the methods that are developed and validated. That has changed tremendously. Along with that is the sensitivity of the instruments has increased, probably exponentially, along with the complexity of the software, which now requires all your chemists to be highly proficient in understanding how the software works, how the instruments really work and how calculations are really being performed. Because they can't really solve problems when they don't understand the fundamentals of what's happening. That has been a huge change. Going forward, it's going to be more of that. The sensitivity is going to keep increasing, even our ICP mass spec instruments are probably 100 times more sensitive now than they were even ten years ago. And it's going to be a challenge for all the laboratories to keep up with such technology because that means you have to change your internal processes in order to eliminate all potential interferences and laboratories just have to keep up.

**INTERVIEWER:** Thanks, Mike. Now when you were growing up, was there something that happened that sparked your interest in this field and dedicated your career into the world of pharmaceuticals?

**MIKE MURPHY:** It was a bit of a journey and a process growing up. My spark in science was from reading Isaac Asimov stories followed by my high school chemistry professor, Mr. Robins, who got me really interested in chemistry and from there I went to various aspects and ended up in the analytical chemistry and really enjoying the complexity of doing trace level analyses.

**INTERVIEWER:** From a client perspective, what are some of the questions that you get asked most often by pharmaceutical clients?

**MIKE MURPHY:** Most of it is really two fundamental questions. The number one question is, “We just don't know what to do. Can you help direct us as to what we are doing?” That's usually in response to a question because no one is an expert in everything. So, what happens is that a client will be presented with a question often from the FDA or their clients, and they simply don't know the answer. So, then they'll contact us for direction as to what is the proper approach in order to solve the problem. That's really the most common. And the other item that comes up then just as frequently is “OK, now we have a problem that's well defined. How do we answer these questions? What is the proper technique? What can we do?”

**INTERVIEWER:** Great, thank you and as we try to answer these questions from pharmaceutical customers, you're obviously seeing a lot of different type of pharmaceutical products and dosage forms, is that right?

**MIKE MURPHY:** That's correct, even on the elemental impurities side, we test everything, from medical devices, to parenteral drugs, virtually every formulation you can imagine. And unfortunately, they all present their own challenges because they all have different matrices and you have to take that into account, you cannot just inject the sample, it's not TV.

**INTERVIEWER:** And you are conceivably trying to figure out analyses on a multitude of different analytes across the periodic table, right?

**MIKE MURPHY:** Absolutely, we do just about every element we can. We do not do radioactive elements here at this site. But other than that, anything on the periodic table is open for testing.

**INTERVIEWER:** Wonderful, thanks Mike. And a lot of those studies are used to support ultimately client filings with the FDA, right?

**MIKE MURPHY:** Virtually all of them. We really run the gamut, we run a lot of preclinical trial testing, research, and development work, is the cleanup method that they used working, did they actually make what they wanted to... and same thing on the finished product side. So, we really run start to finish type of testing.

**INTERVIEWER:** Thanks Mike. Going back thinking about your career a little bit, what advice would you have for somebody who's interested in analytical chemistry, or who's interested in elemental impurities. What type of advice would you have?

**MIKE MURPHY:** If you're just starting out, do not be afraid of math, you're going to have to be good and comfortable with math because you are going to have to solve a lot of sometimes complex calculations and that's inherent in any chemist. The second thing I would recommend is to get as much wet chemistry experience as you can get. We have found that works very well to help propel people. You have to have an understanding of how chemicals react and how they could be manipulated, and they will pay big dividends.

**INTERVIEWER:** Wonderful, Mike. Thank you very much. We want to thank you for your time and for all your hard work here at Intertek Pharmaceutical services In Whitehouse, NJ. Those listening if you have questions for Mike, you can email him directly at [mike.murphy@intertek.com](mailto:mike.murphy@intertek.com). His phone number is 908-534-4445 ext. 624. Thank you very much.