

## EQUINE INNOVATORS PODCAST TRANSCRIPT

Episode 8 / April 2021

### Drug Testing in Racing and Competition With Dr. Scott Stanley

**Stephanie Church, TheHorse.com**

Welcome to The Horse's Equine Innovators Podcast, sponsored by Zoetis Animal Health. I'm your host, Stephanie Church, Editor-in-Chief of the Horse.

Every day, researchers at universities and other institutions around the world are investigating new ways to care for and understand our horses and the horse industry. In this podcast series we talk to those innovators to learn more about their work.

Drug use in horse racing and competition arenas remains a controversial and complicated aspect of the horse industry. Drug testing is important to ensure a level playing field and, more importantly, the health and safety of these animals. But testing methods are imperfect. We need more scientific data to support policy change that will allow authorities to prosecute violators and prevent at-risk horses from racing and competing in the first place.

In early April 2021 we recorded this podcast episode with Dr. Scott Stanley a professor at the University of Kentucky's (UK) Gluck Equine Research Center, several weeks before the Kentucky Derby and subsequent reports of winner, Medina Spirit, testing positive for the corticosteroid betamethasone.

Dr. Stanley and his team have been collecting data and working on a solution for problems that conventional drug testing techniques present. He is a research scientist with more than 30 years of regulatory drug testing experience. Currently Dr. Stanley runs two laboratories. One is a research lab at the Gluck Equine Research Center, and the other, the Equine Analytical Chemistry Laboratory, located in the Coldstream Research Campus of the University of Kentucky, which is a service lab. We hope you enjoy learning more about this fascinating field of study.

*Cuts to recording.*

Welcome, Dr. Stanley.

**Dr. Scott Stanley**

Thank you. Thank you for that kind introduction.

**Stephanie Church, TheHorse.com**

You're welcome. Thanks for joining us. Tell me a little bit about your role at the University of Kentucky and your research focus, and how you ended up there in the first place.

**Dr. Scott Stanley**

So, I was in Kentucky, doing sabbatical leave, looking at a research project with Dr. (David) Horohov (also of UK) on the equine biological passport and biomarkers for inflammatory diseases, as well as our uses for anti-doping, and the opportunity presented itself for us to have some further discussion regarding drug testing needs for the state of Kentucky.

So that developed further into the opportunity of a faculty position at the Gluck Center and running a service laboratory in conjunction with U.S. Equestrian Federation (USEF). So, in mid-to-late December 2018, I came back to the University of Kentucky, as professor, and took over the laboratory at Coldstream in the summer of 2019. And we've been running and operating that for USEF.

We are an accredited laboratory accredited to an ISO standard, as well as the Racing Medication and Testing Consortium. We've been doing about 11,000 samples for the last couple of years, and we're going to move that up, so we'll be doing some more work for them, as well as the Kentucky Racing Commission.

In addition to that service laboratory at the Coldstream facility, we also have a research laboratory at the Gluck Equine Research Center. The research laboratory is principally focused on the equine pharmacology and toxicology and analytical methodology for improving our ability to detect the drugs in those classes.

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In addition to that, we're doing something that's better known to biologists in the industry as proteomics and we're looking at proteins and peptides in the Thoroughbred horse principally to look at physical changes that might be related to a performance enhancing drug that would be used sometime during the horse's career. So, it's more of an out of competition testing approach, but it allows us to look at the horse in a unique perspective over time, meaning that we can look at the individual horse from the time it's a yearling up through its performance racing career and find out if someone is doped with an illegal substance.

**Stephanie Church, TheHorse.com**

That's super interesting, thank you. So, we're going to get into the Equine Biological Passport here in a little bit. But let's first talk a little bit about the history of drug testing.

I know a lot has changed even since the early 2000s when I toured the USA Equestrian which is now the U.S. Equestrian Federation Drug Testing Laboratory, which was then in Ohio. Where did we start, and where are we now with the conventional drug testing techniques?

**Dr. Scott Stanley**

Well, over the last several decades since, you know, the early 2000s, drug testing has changed substantially and mostly because the technology utilized for drug testing has also changed, and there's new needs. The pharmaceutical companies are developing more potent drugs, which means you can give a smaller dose and have a desired outcome. General intention for that is, the drug clears more quickly, and the horse can come back to a more normal state. So, if they want to use a sedative it would be shorter duration of action.

But because those drugs are more potent, we need to apply more sensitive testing technology, and that has developed in the industry through mass spectrometry and different forms of chromatography for isolation or separation of those drugs. Because those occurrences, the anti-doping laboratories, the equine drug testing laboratories, as well as human drug testing, have applied these new methodologies for their anti-doping needs. With that we're able to see these prohibited substances at much lower concentrations, but it's also presented a challenge when we have a therapeutic substance. So, the conventional testing used to be the thin-layer chromatography and immunoassay-based, (but is) almost exclusively now based on gas chromatography

mass spectrometry, and liquid chromatography mass spectrometry. And those tools allow us to see those drugs, or target drugs, at low parts per billion, and in many cases down in the parts per trillion.

**Stephanie Church, TheHorse.com**

What are some problems that the current drug testing methods present?

**Dr. Scott Stanley**

So, there's some challenges that we come across. I was in California for over 25 years before coming back here. At UC (University of California) Davis, I worked very closely with veterinarians at the School of Veterinary Medicine, where I was faculty, and what we often were challenged with was, we had a therapeutic medication, or a new therapeutic medication, that was being used in horses.

And so those horses were competing, whether it was a show or a race, and we wanted to find out information about that therapeutic drug, and when it needed to be withdrawn in order to allow the horse to compete in competition. So, we did a lot of studies looking at that. I worked very closely with a couple of equine pharmacologists, but Dr. Heather Knych at UC Davis helped perform the majority of those studies.

She was the principal investigator for a lot of that work for the Racing Medication Testing Consortium, which led to guidance and published information about how long the drug could be seen, what dose would be appropriately given by the label claim of the medication, and then advising veterinarians and horse trainers as to when to withdraw the drugs so they wouldn't have any findings.

We also occasionally did investigations, looking at contaminants. Contaminants are an example of ... something that comes into the horse's environment that's unknown to the individuals involved, and that can be substances like caffeine, in some cases nicotine, scopolamine, or other medications that might be present in substance and unknown to the trader or the owner.

We occasionally run into a new drug that needed investigation and methodologies developed so that we could find it and determine whether it was metabolized extensively or whether we just needed to follow the parent drug. So, those are some of the challenges that we come into or problems that we need, where we need an either a new method or a more sensitive method for the detection of those small concentrations of drugs.

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**Stephanie Church, TheHorse.com**

Okay, thank you. So, the environmental contamination part I find very interesting. Can you give an example of a case where that was the culprit?

**Dr. Scott Stanley**

Yeah, we have multiple different occurrences where, you know, that was the case. We had situations where we had feed contaminant, we had contaminants in the straw. There were a number of findings over the years for scopolamine from jimson weed that got into bedding or into hay when the hay or the straw was being baled. We had a number of feed contaminants. Some of them were more complicated than others, but we usually did an investigation in order to figure out where that came from. And usually there were patterns that occurred. And what I mean by a pattern is it wasn't one trainer or one barn that was involved; it would be multiple individuals involved throughout the course of time.

You can almost always tell when it was a contamination, because when the first report were to come out, if it was controlled, then the individuals involved would immediately stop doing that. If it was uncontrolled we continued to have violations, and a really good example of that was a feed contamination we had a number of years ago where one of the larger feed companies was preparing mixed feed rations, and they inadvertently contaminated that sweet feed through the molasses. And the molasses had been treated with or, sorry, the molasses contained zilpaterol because they used it as a ... substance that would increase growth promotion in cattle.

So that molasses intended for use in cattle got mixed in with the equine formulation for sweet feed, and we had a large number of positives in a very short period of time. Another prime indication of a contaminant is when it's at multiple tracks. So, we had nearly 50 positives in the course of just about 30 days at three different tracks throughout California, and it was determined that this zilpaterol present in those horses had come from a sweet feed that had been contaminated. And they use the molasses as a means to mix in medicated feeds, like the zilpaterol; they would put zilpaterol in the molasses and then use the molasses to mix in with the feed.

Because of that circumstance, we were able to backtrack all of that at the time, we didn't know it was the molasses, but we kept investigating and working with the Department of Food and Agriculture, with the feed company, and with the California Horse Racing Board, to

finally determine where that contaminant occurred. We found it was one feed plant on one day, they just happened to make thousands of pounds of horse feed in that day, which resulted in getting distributed all over the state.

In fact, that same occurrence happened because some of that molasses was used to make sweet feed that went overseas to Hong Kong, and they had a number of findings in Hong Kong, from that same one-day exposure.

**Stephanie Church, TheHorse.com**

Oh, wow. Well, kudos to you for figuring it out.

**Dr. Scott Stanley**

Yeah, well, I think a lot of times, that's our job. We need to do an investigation and not necessarily a straight up prosecution.

We want to find out what happened and see if we can't learn something from that because we want to make sure it doesn't happen again, and we want to provide people information and feedback. We also need that information so the regulators can appropriately apply penalties. So, in an occurrence where, you know, no one's at fault—there's no way the trainers could have known that this feed contamination was happening—they don't deserve to be penalized, to have their licenses suspended, etc., because they have done something that's completely outside of their control, and when we can figure out where it came from, then they can apply the appropriate penalty, or none, in some cases.

**Stephanie Church, TheHorse.com**

So, Dr. Stanley, what other type of environmental contaminations have you seen?

**Dr. Scott Stanley**

So, in addition to the feed substance, which is probably the most common we, often, not often, but occasionally we get exposures from the human that are in contact with the horse, and that can be in a stall or handling the horse, or handling something that is in contact with horse, like the horse's tongue, or the bit, or around their mouth.

Horses have a really good capability to absorb things orally, but also they use their mouths a lot of time, you know, to forage around the ... stalls, and there are those odd circumstances where the human has used to stall as a restroom. And if they happen to be on a medication, that medication can get consumed by the horse when they are

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either eating bedding or hay that might be contaminated by something that was in the human's system. Now that can be circumstances where they're on a regular therapeutic medication, or where they handled something and then handled the horse. So those are real-world circumstances.

We've had drugs like propranolol, which is a medication given to people with heart deficiencies or cardiac insufficiencies, and it's a drug that's not particularly potent, so they take large doses or larger doses. And then if they were to use the stall as the restroom, that could contaminate the stall and result in absorption into the horse. We also have other circumstances where the horse can contaminate the stall and another horse is put in the stall, resulting in exposures. So those are the other type of environmental exposures that can happen other than just the feed substances that the horses consume.

**Stephanie Church, TheHorse.com**

Okay, so, earlier you mentioned withdrawal times, when you're talking about Dr. Knych and some of the research that you guys did. Not all of our listeners have navigated those—drug testing at all even—or withdrawal times. Could you explain kind of how they work, and do they differ in a horse show setting versus a racing one?

**Dr. Scott Stanley**

Yeah, okay, sure, I'd be glad to handle that. And they do in fact, change depending on what performance event you're looking at, whether it's a show or whether it's race. And in some cases, we find differences because they're therapeutic medications and the horses that are at a show are not put under the same stresses that horse that would be competing in a race. So it may just in fact be the fact that they're not, you know, racing at full speed like a Thoroughbred. So we can use medications that might be dangerous to use in a racehorse in a show horse.

So, there are some differences. But, with, in collaboration with Dr. Knych, we did a large number of studies over the years that looked at these therapeutic medications and provided feedback for pharmaceutical companies, regulators, and veterinarians, as well as trainers. So that they would know when to use a medication, at what dose they could use the medication, and when to withdraw that medication, so it wouldn't be present in the horse's blood or urine when they're competing. So, the intention is, is by regulation, they're generally not ... allowed to have any substance present in their system when they compete.

So, if we utilize a model using the horse, and we dose it with the appropriate drug, we collect blood and urine samples out through a time course, we can predict when the end of detection period would be. In some cases, if it's a therapeutic drug, we may establish a threshold. But most cases, we're just going to follow that drug out until we really can no longer see it and we determine when that time period is. So, once we've established our detection time, we'll go back and determine how to apply withdrawal time. So the withdrawal time is always going to be longer than our detection time, you know, based on information that we have. So, if we can see the drug for 56 hours, we would probably recommend at least 60 hours for a withdrawal period.

**Stephanie Church, TheHorse.com**

Okay, thank you. In the therapeutic medications, someone may wonder why they might be necessary. Why are they necessary and where do we start seeing problems with them with drug testing?

**Dr. Scott Stanley**

Well, just like with human athletes, horses run into different setbacks. They get sick. They get a minor injury. So, they need to be able to be treated with a therapeutic substance like an antibiotic or a non-steroidal anti-inflammatory and, in some cases, a corticosteroid. Horses can get hives from different reactions of feedstuffs they're exposed to, or from, you know, commonly seen pollens, bee stings and other things that cause them to react. So, it's essential that veterinarians have the ability to treat a horse when they're ill or when they're injured. And then we need to have information about when that drug needs to be withdrawn so they can get back into competition.

So, it's just a normal course of, you know, health care, and monitoring the health of the horse, as well as, you know, the environment around the horse, to make sure that we're using the most logical information. The horse can compete on a fair, level playing field with no pharmacological advantage, and no possibility of having a medication violation.

**Stephanie Church, TheHorse.com**

Where do supplements come in?

**Dr. Scott Stanley**

So, supplements and nutraceuticals are seen slightly different than those. Generally, we're not using the supplements as a pharmaceutical, so they're not given

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by injection, they're ingested. However, some of those substances can be either contaminated with a natural product, something like caffeine, nicotine, even, we have to remember that, you know, ephedrine, morphine, and cocaine are all things that, that grow. One of the things that we did see fairly frequently, not fairly frequently, but occasionally in California, was scopolamine because it was native to California. So, if they were baling hay or straw, sometimes it became part of that and resulted in the horse's stall or in the feed and ended up resulting in a positive because it wasn't often recognized, because it could be a very small amount. Because the drug testing is so sensitive, we can pick up those, you know, 24-48 hours after the horse consumed it.

**Stephanie Church, TheHorse.com**

Okay, and that's the jimson weed that tests for scopolamine?

**Dr. Scott Stanley**

Yes, sorry.

**Stephanie Church, TheHorse.com**

Okay, got it. Yeah, I'm not as familiar with that back east.

**Dr. Scott Stanley**

And you know that there's all kinds of other stories you can tell about jimson weed and some of these plant products because we did a lot of investigation from some findings we had when I first got out to California in the '90s. We found that jimson weed, depending on how much water was present, what time of the year, whether it was the leaves, the stem, or the seeds, you had different concentrations of scopolamine, atropine, and hyoscyamine present in the samples, depending on what they consumed. Whether that was, like I said, leaves, stems, whether it was a drought year, whether it was a rainy year. There was a lot of variability in that so you couldn't always tell, you, know, just by the amount of scopolamine, whether it was jimson weed.

**Stephanie Church, TheHorse.com**

Okay, that's so interesting. So, drugs, whether used as a therapeutic or performance enhancing, can be like, moving targets for drug testing labs. And you mentioned that a little bit earlier.

Why is this? Who's developing these types of things, and how do you keep up with them?

**Dr. Scott Stanley**

Um, so a bit of a moving target can be for a lot of reasons.

We could use a drug like clenbuterol as an example. So, clenbuterol was a very good therapeutic drug that was brought on by a pharmaceutical company for horses with respiratory disease, and it was used for a number of years for that very effectively. Unfortunately, at higher doses, clenbuterol could be used as a repartitioning agent, meaning that it could result in an increased muscle, decreased fat deposition. So at very, very high concentrations, it was used in cattle and pigs as a performance enhancing, and with that knowledge, some horsemen kind of went back and reevaluated the use. And they started putting all of their horses on clenbuterol in order to get these desired effects.

When they did, we had to modify the way that we were testing for that, eventually make regulations and rules that prohibited it. First, in Quarter Horses, because that's where most of the abuse was being found. And then later for other breeds as well, because of medication, even though a very fine therapeutic, if misused, can have inappropriate and performance-enhancing effects. So that'd be an example of a moving target, a little bit, with the drug going from a therapeutic to performance-enhancing. And what we find is there are other substances that can also result in that.

There is a perfect example of a performance-enhancing drug that came from a drug that was being investigated as a natural therapeutic. There's a drug called dermorphin, which many people in the horse industry may know better as frog juice. Dermorphin was a substance that was investigated and found in the '80s that was a natural product that came from the tree frog. And that particular substance has the same capability to bind opiate receptors, but it's more potent than morphine. So that substance that was found in a number of Quarter Horses about 10 years ago, became very problematic because they were using it as an enhancement drug. Because, unlike humans, horses are stimulated by certain doses of opiates.

**Stephanie Church, TheHorse.com**

Wow, so, how did you go about kind of tracking down the frog juice, is that something you can describe to us?

**Dr. Scott Stanley**

Well, it wasn't our laboratory that initially detected it, but one of the racing laboratories was given a syringe ... suspected of containing illegal substance. And they were able to tell from that raw material that it was dermorphin and identify that substance. It's very similar to the case

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that happened just prior to that, about five years prior to that, with human abuse of tetrahydrogestrinones, which came in a syringe to the UCLA laboratory, human laboratory exposure, and they developed a test for that substance and it was found in a number of athletes, human athletes, who were using that anabolic steroid. So sometimes we get information that comes to us in a fashion like that. We can ... backtrack that into the identification of an illegal substance.

More often than not, we have to demonstrate and prove some of our rumors aren't exactly true, which means that in cases we hear a rumor that I'm fairly confident isn't happening. But we have to prove that analytically, an example of that is cone snail venom. Cone snail venom was a substance that was rumored to be used in racehorses for a long time. The drug in that case, ziconotide, is a substance that, in fact, doesn't have a long half-life at all. It was being used for people that had refractory back pain, but they had to use that by surgically implanting a pump, that distributed that cone snail venom product directly into the spinal cord.

If you put it in the biological system, meaning if you put it outside of the spinal cord, plasma esterases will destroy it in a matter of minutes.

So, if you just injected it into the knee, you get zero effect out of it, because it would be, you know, gobbled up by esterases which destroy that drug and make it inactive (in a) matter of minutes. But it was rumored that it was frequently being used, and we had to demonstrate that, in fact, you know, even if it was used, it would be completely ineffective. The other thing that we found out that made it impractical was a single dose for that would have cost approximately, I think it was around \$18,000, for a single dose of ziconotide, for a horse.

**Stephanie Church, TheHorse.com**

That's a bit impractical.

**Dr. Scott Stanley**

It seemed like a very unlikely performance-enhancing. But those are things that we had demonstrate. We couldn't just say, we don't think it's working. We actually have to demonstrate with our science that, in fact, that that's not happening.

**Stephanie Church, TheHorse.com**

Okay, I see. So, let's go back to the equine biological passport. And you were talking about the proteins and

peptides that you would be looking at over a horse's life, perhaps. Tell me about the equine biological passport. Let's just review what that is.

**Dr. Scott Stanley**

Sure. The equine biological passport is a means that we're developing in order to test horses out of competition. In many cases, that'll be longitudinally, so that's over time. We collect samples when they're younger through when they become older and they're competing to find out if they've been given anything. And the way we'd use that is we use something called biomarkers, and just like we talk about biomarkers for disease and illness, biomarkers can be any type of indicator that we use to establish that a horse's performance might be altered by a medication.

So we can use a biomarker in some cases might be a metabolite. But, in this case, it'll be proteins and protein peptides that we're going to pull from the horse's system. And we're going to look for changes in the abundance of that.

That change might be an increase or a decrease. And what happens is there's a trigger inside the horse's system from the medication that results in increased gene expression. When that gene expresses additional proteins and peptides, we can monitor that through our equine biological passport and make templates so that we know when a horse is outside of normal parameters. We can utilize that information to do further scrutiny on that horse, or investigate whether the horse was given a medication during that period of time. So, it draws additional attention to, whether we approach that horse or don't approach that horse.

**Stephanie Church, TheHorse.com**

Okay, so, at this point, are you able to discriminate between an environmental contamination versus a deliberate performance-enhancing attempt?

**Dr. Scott Stanley**

At this point, we're still developing that. But, yes, when we are ready to implement that, we will be able to distinguish naturally occurring environmental changes, whether the horse was given, you know, an antibiotic or therapeutic treatment, whether it was, you know, raised in a field that was high-protein, or if they were given alfalfa hay versus timothy hay, we should be able to readily establish that this horse was just in an environmental difference versus a pharmaceutical difference.

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**Stephanie Church, TheHorse.com**

That's cool. So, what types of things would you look for, or what would happen if a horse were to get a new drug for which there are not yet conventional testing methods, what would you see on the equine biological passport for something like that?

**Dr. Scott Stanley**

So that's the best part overall about, you know, the equine biological passport concept is that we wouldn't necessarily have to know every drug that was out there. We can say that the horse's biological passport is indicative of an anabolic steroid or some type of growth promotant. Not necessarily that the horse was getting stanozolol, or equine growth hormone. We can say that it's consistent with the horse that was given, you know, some type of performance-enhancing substance, which is helpful because oftentimes, you know, like the example with the dermorphin, we needed to wait till somebody came ... to us with a syringe before we could actually identify that compound. But with the equine biological passport, we could know well before that, that the horse was not typical and needed further scrutiny.

**Stephanie Church, TheHorse.com**

I see. So, practically speaking, what would a horse's passport look like? So, what would say, a horse that's a few years into his racing career, have as biomarkers versus one that's just starting out, or maybe still out in the field as a young, very young horse?

**Dr. Scott Stanley**

So, what we see, or what we would like to see is a heat map indicator where all of those normal parameters would be green. So we would expect the horses increase in, you know, collagen-related or muscle growth parameters to all be, you know, at a higher level when they were in race condition than they would be when they were just young as a yearling or weanling. As that changes, we should be able to see a consistent pattern, that those horses would all fall within a green category, meaning the normal category. And the heat map then changes color and gets more dense when those parameters start to get outside of that. Now, ideally, we would compare that to the horse's own status when they were a yearling or weanling and then compare it later on when they were competing. If that's not available, then we would compare that to the general population.

Once we identify what that looks like, then we can establish that as our norm; anything outside of that norm ... we would do further investigation or, in fact, start to test that horse at a more frequent rate.

**Stephanie Church, TheHorse.com**

So, tell me about a little bit of the studying that you've done so far. Aren't there some horses that you guys have been looking into with this approach?

**Dr. Scott Stanley**

There are, we've looked at some compounds that were administered and then we followed patterns and we did see some physiological changes in a protein related to a dose of an anabolic steroid. And in that case that gene expression increased for a period of time, and then that particular biomarker ... disappeared entirely.

So, we hypothesized that that occurrence was a result of the horse being exposed to that, running into an increased protein production, which depleted the available proteins for that particular biomarker, resulting in a deficiency later on in time. So, we could watch it go up and then go down. And that was a perfect indicator of a non-normal outcome,

**Stephanie Church, TheHorse.com**

Okay, so, how would this equine biological passport fit in with the current conventional methods of testing?

**Dr. Scott Stanley**

It would be an out-of-competition test, so, in those circumstances, we would be using that for a situation where the horse was between races, say, between stakes races, or approaching a big event, and they would be tested out of competition, and we would make note of any abnormal findings and report that back to the regulatory body.

**Stephanie Church, TheHorse.com**

Okay, I see, and where do you anticipate you'll be, as far as working with the regulatory oversight, and with what kind of timeline over the next few years?

**Dr. Scott Stanley**

Well, there's a couple of different approaches that we're going to have to do. There aren't necessarily regulations that cover all of those circumstances. So, we're going to have to be in a situation where we make new rules in order to use, effectively, the biological passport. So, those rules would have to be something that we could utilize to

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disqualify horses that should not be competing or include that information where the horse could come under further scrutiny.

**Stephanie Church, TheHorse.com**

Okay, thank you. You've said that this program is what we need to overcome today's doping challenges and protect our industry's reputation for the future. Tell me about how this program intersects with the public perception of the horse industry.

**Dr. Scott Stanley**

So, you know, racing has struggled the last few years with some of its public perception. And I don't think that many of the general public understand the effort that goes into making sure that, A) we have a level playing field for all competitors but that it's a safety issue, as well, that we work very hard with our drug testing, with our veterinary oversight, with the regulators to make sure that the horses and the jockeys are safe when they compete, whether it's through racetrack renovations for racetrack surfaces, their anti-doping, or their out of competition testing programs.

The majority of those efforts are to establish that the horse, is safe, and that the riders can compete without fear of injury. Now, with that being the situation, sometimes we don't do a great job of letting the general public know that all of these things are in place. We spend millions upon millions of dollars each year for health, welfare, and safety, and I think we do a poor job oftentimes of telling people about that.

**Stephanie Church, TheHorse.com**

So, is there anything else that you would like to add for our listeners today about the equine biological passport or drug testing in general while we're having this conversation?

**Dr. Scott Stanley**

Yeah, so I mean one of the things that I think, you know, people can know is this is an ongoing process. We've been very fortunate to have some really strong partners with that. The University of Kentucky has led the way with that. Initially, UC Davis while I was there, and the California Horse Racing Board, allowed me to get this started, but the Jockey Club has been a big provider, but the last several years, collaborations and effort came from Stonestreet Farm. Barbara Banke and her group have been incredibly supportive and helped us raise additional funds from other partners in the industry to further the cause and get this going.

With that, additionally, we've had several farms, including Stonestreet, allow us to sample their horses to get that baseline data, and open up information to what the horses were treated with. It also provides them some transparency. When they go, if they're going to sell one of those horses, to tell future buyers that the horse was not given anything and here's the data and demonstration that it wasn't given any performance-enhancing substance. So, you know, there's a combination of information that we can provide, but the access to those individual horses and the financial support are absolutely invaluable for us to get the research done.

Concurrent with that, we've also continued to obtain and apply some of the newest technology in the world of mass spectrometry to apply these. And the reason that's so beneficial is because these are tools oftentimes that are loaned to us by the company that manufactures them and allows us to use those for a period of time to develop new methods. It's another system that allows us to answer questions that otherwise wouldn't be answerable.

**Stephanie Church, TheHorse.com**

Well, I do know that Stonestreet produced a video about your laboratory and we'll include a link to that in our show notes. Is there a place that our listeners can learn more about the research that you're doing?

**Dr. Scott Stanley**

There have been a few articles out there. In addition to the video connection on our website, there's also additional information about the laboratory through the Gluck Equine Research Center website, it's at the University of Kentucky. We have our own website for the Equine Analytical Chemistry Laboratory, but it's still fairly rudimentary. Anybody that specific information (they need) they can either go through the College of Agriculture's Office for Media Control, or also contact me directly for any information. The facility that we're in right now is also getting upgraded. So, in the next couple of years, we'll be in a brand-new facility, as well, so we're still looking at quite a few excellent advances that the lab's going to go through.

**Stephanie Church, TheHorse.com**

That's great to hear. Thank you very much, Dr. Stanley, for sharing your time and expertise with us today.

**Dr. Scott Stanley**

Well, thank you, Stephanie, I appreciate the opportunity, and I'm always happy to provide information to folks in



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the industry. And this was a wonderful opportunity for us to do that, from the university. Thank you.

**Stephanie Church, TheHorse.com**

You're welcome. I also want to thank our sponsor, Zoetis.

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