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friends of the SAINT LOUIS UNIVERSITY LIVER CENTER
Cure Liver Disease Now

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INSIDE THIS ISSUE:

Friends & SLULC News

It was a beautiful day in May at Strathalbyn Farms Club for this year's **Shoot for a Cure** shotgun sports fundraiser. We had 24 corporate and friends/family teams and for the first time, were sold out!! It was a fun filled day consisting of shotgun sports, horseshoes, fishing, raffles, live auction and dinner which helped raise over $64,000!

Thanks to everyone's support, the Friends of the Saint Louis University Liver Center (SLULC) mission to support research at the SLULC and spread awareness of liver disease continues.

The doctors and researchers at the SLULC continue with their quest to find better treatments to improve not only the quality of life for liver patients, but hopefully one day lead to a cure!

Here are a few "shots" from the event. To view more photos visit: **friendsoftheslulc.org/events/past-spring-events/**

SAVE THE DATE!
Shoot for a Cure
May 3, 2014

Special Thanks to the 2013 Planning Committee members & volunteers, the Young Friends of SLULC, Lindenwood Shotgun Sport team, and Boy Scout Troops 507, 674 and 754 which helped make the day a success!

You're invited...

11th Annual Diamonds Gala
friends of the SAINT LOUIS UNIVERSITY LIVER CENTER
Friends Shine like Diamonds

November 16, 2013
Chase Park Plaza

SAVE THE DATE!

The 11th annual Diamonds "Friends Shine Like Diamonds" Gala, will be held Saturday, November 16th at the Chase Park Plaza, Khorassan Room. The evening begins at 5:30 p.m. for a reception and silent auction item viewing, followed by dinner and awards presentation, live auction and dancing to the music of the Ralph Butler Band.

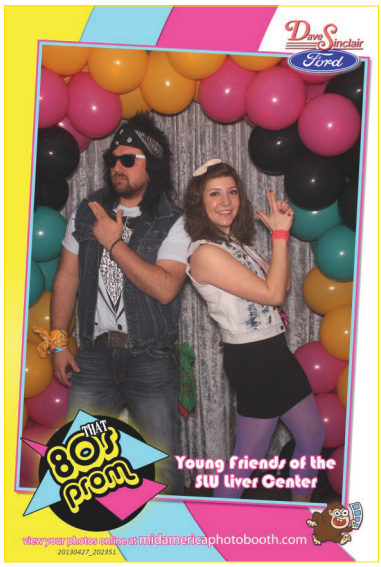
To register or for information, visit us at friendsoftheslulc.org or call the Friends office at 314-576-3078.

Young Friends of SLULC Fundraiser

Shoulder pads, big hair and slap bracelets were out in full force when the Young Friends of the Saint Louis University Liver Center hosted their first-ever **That 80s Prom** at Plush St. Louis on Saturday, April 27, 2013.

That 80s Prom featured live music from *That 80s Band*, along with prom pictures for guests to commemorate the evening's festivities. Dr. John Tavis from the Saint Louis University Liver Center was the Honorary Chair. A costume contest helped raise money and crown the Prom King and Queen.

The event raised over $19,000 toward the Young Friend's mission to support the research efforts at the Saint Louis University Liver Center!



Volunteers are the backbone of the Friends of the SLULC!

How Can You Help the Friends of SLULC?
Be a Sponsor - Be a Volunteer

Whether you are interested in becoming a sponsor or want to answer phones, stuff envelopes or serve on a planning committee, we have volunteer opportunities available. You may volunteer as an individual or bring a group of friends. Please complete and fax this form to 314-576-3654 or mail to the Friends office.
A representative will contact you soon!

☐ *Yes, I am interested in learning more about sponsorship opportunities! Please contact me with more information.*

☐ *Yes, I am interested in volunteering! Please contact me with more information.*

Name _____ Home Phone _____ Work Phone _____

Address_____ Cell Phone _____ Email _____

City, State, Zip _____ Best way to reach you _____

Times you are available to volunteer: _____

SLULC Using FibroScan to gauge Liver Stiffness

Physicians at the Saint Louis University Liver Center have a non-invasive option to diagnose liver disease, using an ultrasound-like technique to measure liver stiffness rather than performing an invasive biopsy. Using a process called "transient elastography," SLU*Care* gastroenterologists are able to measure liver stiffness using sound waves.

The technology – FibroScan – was approved by the U.S. Food and Drug Administration (FDA) in April.

"It's very similar to an ultrasound," says Brent Tetri, M.D., professor of internal medicine at Saint Louis University School of Medicine.

"We participated in trials as a testing site to determine the technology's quality over the past several years and we have a lot of experience with it."

By measuring liver stiffness, physicians can assess all pathologies causing liver scarring and cirrhosis, including metabolic syndrome and non-alcoholic fatty liver disease, chronic viral hepatitis and excess alcohol intake.

"This is a great option for following patients long-term," says Tetri.

Previously, patients would need an invasive biopsy to diagnose the extent of liver disease.

Bruce Bacon, M.D., SLU*Care* gastroenterologist and co-director of the Saint Louis University Liver Center, says although biopsies are typically only done every four to five years, they are an invasive procedure and can be painful.

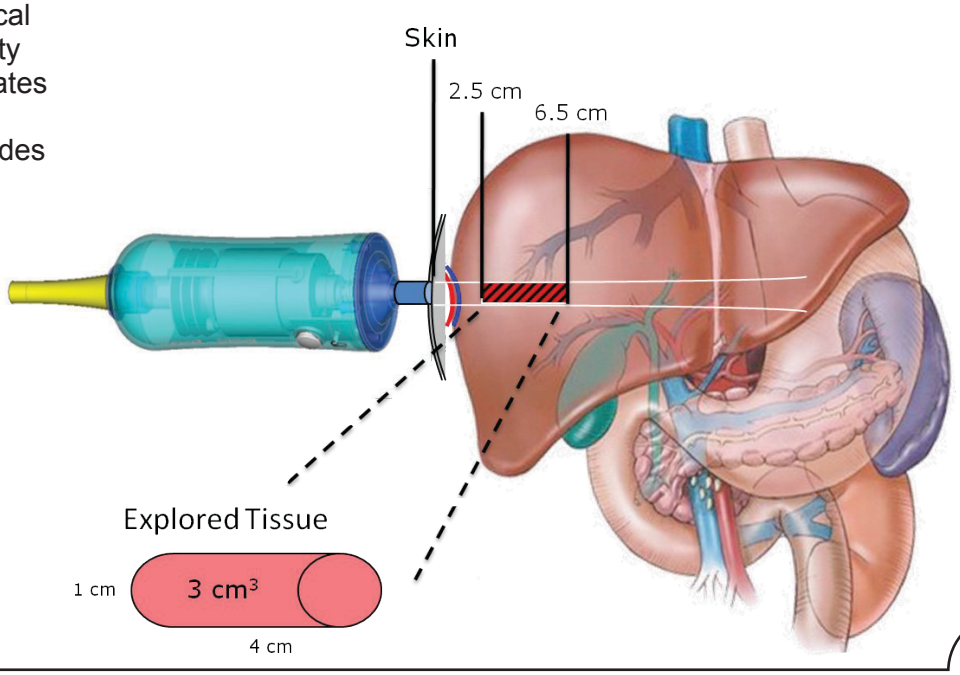
"The FibroScan doesn't require any incisions or needles and can be repeated as necessary to follow a patient's progression," says Bacon.

For more information about FibroScan or transient elastography, call 314-977-4440.
Current SLU*Care* patients may call 314-577-6000.

Nationally accredited and with more than 500 physicians, SLU*Care* is the medical practice group of Saint Louis University School of Medicine. The school educates physicians and biomedical scientists, conducts medical research, and provides health care on a local, national and international level.

SAINT LOUIS UNIVERSITY
LIVER CENTER

Measurement Parameters



Childhood Obesity and Fatty Liver Disease

Ajay Jain, MD
Pediatric Investigator,
Saint Louis University

With childhood obesity on the rise, fatty liver disease is also becoming more prevalent and can lead to serious health problems including fatty infiltration of the liver, liver enlargement, scarring and ultimately liver failure. Such problems are commonly referred to as nonalcoholic steatohepatitis (NASH) and nonalcoholic fatty liver disease (NAFLD). With funds from the National Institute of Health, Cardinal Glennon Children's Medical Center at Saint Louis University is one of 15 hospitals taking part in the nationwide Nonalcoholic Steatohepatitis Clinical Research Network to find treatments and better diagnostic tests for pediatric NASH and NAFLD.

"While obesity frequently accompanies NASH/NAFLD, many of the symptoms are non-specific," says Ajay Jain, MD, Cardinal Glennon physician and Saint Louis University Pediatric Investigator. "Other signs and symptoms may include a dull, aching upper abdominal pain, just below the rib cage on the right side, fatigue or abnormalities in liver tests. Also, dark skin pigmentation of the armpits or neck can be signs indicting insulin resistance that is often seen in children with NAFLD and NASH."

Any child with clinical evidence of NASH/NAFLD may be a candidate for the studies. Dr. Jain suggests that such children, whether they and their parents are interested in participating in the study or not, should be seen by the a Hepatologist for evaluation and treatment.

"Our ultimate goal with this study is to understand the mechanistic basis of the disease process, find preventative measures for NASH/NAFLD, as well as treatments to prevent progression of disease in children who are already suffering," Dr. Jain says, adding, "But regardless of the findings, there is no substitute for a healthy lifestyle."

Enrollment in the study is at no cost to the patient and includes a physical examination,

For questions or to learn more about the study, please contact Dr. Jain at 314-577-5647

Rapid Progress and Effective Cures Usher New Era for Hepatitis C

Adrian Di Bisceglie, M.D., Chair of Internal Medicine and Co-Director of the Saint Louis University Liver Center (SLULC) urges baby boomers to learn about the risk factors for hepatitis C and talk with their physicians about screening for the virus.

Dr. Adrian Di Bisceglie
Chair of Internal Medicine
Co-Director of the SLULC

1989, researchers first identified the hepatitis C virus, a health threat that had been worrying doctors as they noticed patients with unexplained liver damage occurring after receiving blood transfusions. The discovery of the potentially debilitating and deadly virus sparked several decades of productive research. Researchers made unusually rapid progress, in medical research terms, and developed therapies that had success in eliminating the virus, at least in some patients. Then, in 2011, two new drugs were brought to market that changed the landscape in a dramatic way, offering a cure for many more who suffer from a chronic form of the illness.

Currently, we estimate that 4 million people in the U.S. are infected with the virus, and at least 10,000 people in this country will die from its complications each year. Symptoms of hepatitis C can be quite variable and often only develop at the most advanced stages of liver disease, years after the virus was contracted. For this reason, it is believed that roughly 60 percent of those who have the virus are unaware of it. Patients who have a chronic infection can develop inflammation of the liver, leading to fibrosis and cirrhosis, as well as other complications that may result in liver cancer and death. While hepatitis C is sometimes compared to HIV, and, indeed both are blood-borne, the viruses behave differently. For example, hepatitis C is not frequently spread through sexual contact. It is more likely to be transmitted from a needle stick, blood transfusion or organ transplant received before 1992, recreational drug use, or from mother to infant.

(In fact, reducing hepatitis C transmission by blood donation has been a success story of its own. In the mid-1960's, approximately one in 10 transfusions was associated with hepatitis, initially referred to as non-A, non-B hepatitis, but now known as hepatitis C. Now, thanks to an all-volunteer blood donor system, as well as questionnaires that weed out donations from those with high risk behavior, and the routine testing of donated blood for various biomarkers of hepatitis, the risk is virtually nonexistent at one in five million.)

Today, we see hepatitis C patients from all walks of life. We see captains of industry who may have contracted the virus in their youth and healthcare workers who received accidental needle sticks on the job or even young people who acquired it from their mothers at birth. Because they may only begin to show symptoms decades later, it's often impossible to pinpoint the exact way the virus was contracted. However, there is an inexpensive and accurate blood test for hepatitis C. Liver disease specialists advocate that those at risk ask their doctor to be tested. In particular, the CDC now recommends that all baby boomers -- those born between 1945 and 1965 -- be screened. Doctors also urge those with risk factors such as a blood transfusion prior to 1992, a history of injection drug use and abnormal liver enzymes counts be tested.

With parallel clinical trials successfully concluding in recent years, two effective new drugs, Merck's boceprevir and Vertex's telaprevir, were FDA approved in 2011 to treat the virus. Added to the existing treatment regimen of peginterferon and ribavirin, these new medicines can cure nearly 80 percent of those with the disease. Though the new treatments still require the use of peginterferon, which frequently causes taxing side effects, we've turned a corner. The new drugs lower the average treatment time from 1 year to 6 months. More antiviral drugs against hepatitis C are in the pipeline, and their use may eventually eliminate the need for interferon altogether. But, right now, we can tell patients with hepatitis C that treatment time is expected to be much less than a year, is far more likely to cure them, and is likely to add years to their lives. The opportunity to halt progressive liver damage is a chance to save those with the virus from debilitating fatigue, cancer and death.

Physicians now can recommend testing to patients with the knowledge that we have effective medicines to treat the virus if we find it. These new medicines are revolutionizing the care of those with hepatitis C. It's critical that those at risk be screened so the illness can be treated.

In a Fight to the Finish, SLU Research Aims Knockout Punch at Hepatitis B

John Tavis, Ph.D.
Professor of Molecular Microbiology and Immunology at SLU

In research published in the Jan. 24 edition of *PLOS Pathogens*, Saint Louis University investigators together with collaborators from the University of Missouri and the University of Pittsburgh report a breakthrough in the pursuit of new hepatitis B drugs that could help cure the virus. Researchers were able to measure and then block a previously unstudied enzyme to stop the virus from replicating, taking advantage of known similarities with another major pathogen, HIV. John Tavis, Ph.D., study author and professor of molecular microbiology and immunology at SLU, says the finding may lead to drugs which, in combination with existing medications, could suppress the virus far enough to cure patients.

"Hepatitis B is the major cause of liver failure and liver cancer worldwide," Tavis said. "This would have an extremely positive effect on liver disease and liver cancer rates.

"If we can cure hepatitis B, we can eliminate the majority of liver cancer cases. This research is a step toward achieving that goal."

World health experts estimate that more than 350 million people are chronically infected with the hepatitis B virus. Several drugs are able to treat symptoms successfully, though they are not able to cure many patients. Of those infected with hepatitis B virus, up to 1.2 million die from liver failure and liver cancer each year.

A person who is infected with hepatitis B virus can have up to a billion viral copies per drop of blood. To cure a patient, a drug needs to reduce those levels to zero.

Not Quite a Cure While existing medications are very powerful, they cannot quite deliver the knockout punch to hepatitis B. The drugs approved to treat the virus can reduce its numbers, make symptoms disappear for years and push it to the brink of extinction. But for most people, the medications can't kill the virus completely. And, as long as any virus remains, it can multiply and grow strong again.

And so, hepatitis B treatment usually spans decades, with costs of $400 to $600 a month, if patients can afford the medication. Expensive and beyond the means of many, some patients do not receive any treatment at all. As a compromise measure, some patients opt to take medication for a short time, staving off the damage the illness will cause for a few years.

A 19-Year Puzzle
Hepatitis B virus puts up a protracted fight in the lab, as well. For 19 years, Tavis has worked on a particular part of the virus's genetic puzzle, and until recently he had been, in his words, failing miserably.

The problem was a common one in the laboratory. Until scientists can measure a puzzle piece, they can't study it. And, until researchers have some small success, they don't know if they're on the right track or headed down a dead end.

This was the case for the particular enzyme Tavis believed held answers. Stumped, he returned to the puzzle again and again over the years.

"Until you see that first glimmer, all negatives look the same," Tavis said. "One of the biggest skills in this job is knowing when to give up. It's not obvious when you are wasting time and when you are giving up too early."
In Tavis's case, his instinct served him well, and two years ago, he saw the first glimmer of the answer he was searching for.

A Virus's Tactics

"Viruses are genomic suitcases," Tavis said. "They have many tactics for invading and taking over our cells, using their own DNA as the blueprints."

In the case of hepatitis B virus, and, -- in what turned out to be a lucky break, HIV, as well -- the virus replicates by reverse transcription. In this process,

(continued on page 7)

In a Fight to the Finish… continued

viral DNA is converted to RNA and then converted back to DNA by two viral enzymes, both of which are vital to the virus's replication.

The first of these enzymes, a DNA polymerase, has been well studied in the lab. The five most commonly used hepatitis B drugs are able to treat (but not cure) the illness by blocking this enzyme.

The second enzyme, ribonuclease H (RNAseH) had eluded investigators in the lab. With no means to measure it, researchers hit dead ends even though they believed the enzyme was a promising target, in theory.

Though it made sense to target RNAseH, no method existed that allowed researchers to measure the enzyme's activity. Tavis was looking for an assay, a way to tell if a substance would block the enyzme's function.

Search for an Assay

After years of work, Tavis and his research team saw the first glimmer of activity and were able to develop an assay for RNAseH, allowing him to begin to study the enzyme and try out promising theories about how to block it.

Once the assay for the RNAseH was developed, Tavis and his team were able to try out this theory.

"We found that what worked with the first enzyme worked with the second enzyme," Tavis said. "This is a proof of principle. We're on the right track."

Hope on the Horizon

With these promising advances, researchers say that the search for anti-hepatitis B RNAseH drugs is now feasible and that using similar anti-HIV compounds as a guide is likely to have a high chance of success.

Investigators have reason to hope that combining a new anti-hepatitis B RNAseH drug with the existing drugs may suppress the virus far enough to cure patients with hepatitis B.

"I anticipate a new drug targeting the second enzyme would be used together with the existing drugs," Tavis said. "They jam different parts of the process.

"The drugs we have are very good drugs. They push the virus down, but they can't quite kill it. They'll still do the heavy lifting in the future, but with an additional drug I hope we'll be able to mop up the rest. Together, they may be able to do it. We don't have a big distance we need to travel to reach that point."

Tavis's research was funded by Saint Louis University's President's Research Fund, Friends of the Saint Louis University Liver Center, and the Saint Louis University Cancer Center.

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TAKE-AWAYS:

- Current hepatitis B drugs can treat but not cure the infection for most people. Saint Louis University researchers' new breakthrough paves the way for additional drugs that can help cure those who are infected.
- Researchers were able to measure and then block a previously unstudied enzyme to stop the virus from replicating, taking advantage of known similarities with another major pathogen, HIV.
- The search for anti-hepatitis B virus RNAseH drugs is now feasible. Using similar anti-HIV compounds is likely to have a high chance of success.
- Because the majority of liver cancer cases worldwide are caused by hepatitis B virus, a cure would dramatically cut liver cancer rates.

As with all laboratory research, more study is needed before a treatment can be approved for patients. In addition to further laboratory research, any new drugs would have to be studied in a clinical trial to know how safe and effective they will be.

SAINT LOUIS UNIVERSITY LIVER CENTER

PBC ALLIANCE GREETINGS!

PBC Alliance

With a strong desire to offer an event of interest in October 2013 for the PBC Alliance, we extend an Open Invitation to all PBC patients and PBC Alliance members to contact us with topics you want to learn more about and/or activities you would like to be part of.

Patti Silvey welcomes your input at psilvey@centurytel.net or 314-640-6038.

We also invite you to become part of the PBC Alliance Planning Committee and look forward to hearing from you!

Becky, Patti, Deb and Joan

*The Mission of the PBC Alliance is to **Care** for the needs of PBC patients by **Advocating** for new technology and treatment, funding **Research**, and to provide **Education** for PBC patients, medical professionals and the community.*

What's on the Calendar?

September 19, 2013 Missouri Viral Hepatitis Summit at the Sheraton Westport Hotel, Lakeside Chalet
800-891-0707 summits@hepatitisfoundation.org

November 1–5, 2013 AASLD (American Assoc. for the Study of Liver Diseases), Washington DC

November 16, 2013 11th annual Diamonds Gala at The Chase Park. To register or for info, visit: http://friendsoftheslulc.org/events

December 7, 2013 Best of AASLD (American Assoc. for the Study of Liver Diseases) at the Moulin
2017 Chouteau Avenue, St. Louis 63103
Saint Louis University CME Office: 314-977-7400

May 3, 2014 Shoot for a Cure, Strathalbyn Farms Club, St. Charles, MO. To register or for info, visit: friendsoftheslulc.org/events/spring-event

Special Thanks to our newsletter sponsors!

SAVE THE DATES!

Diamonds^{11} Gala
November 16, 2013
@ The Chase Park Plaza

SHOOT FOR A CURE
May 3, 2014
@ Strathalbyn Farms Club

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