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University of Lethbridge and University of Calgary researchers collaborate to tackle hepatitis B virus

For Lethbridge residents suffering from the effects of chronic HBV and its resulting health problems, treatment options in Lethbridge do not exist, sending most patients to the Calgary Liver Unit. On Thursday, Mar. 8, Calgary Liver Unit Medical Director Dr. Carla Coffin will present her work at the University of Lethbridge as part of the U of L's Alberta RNA Research and Training Institute (ARRTI) Speaker Series.

The hepatitis B virus (HBV) is a human pathogen that causes both acute and chronic infection, affecting millions of people worldwide. Hundreds of people in Lethbridge are likely suffering from chronic HBV. Coffin, in collaboration with the U of L's Dr. Trushar Patel is working to combat the disease.

“Our work integrates Dr. Coffin’s expertise in molecular virology with my expertise in structural biophysics tools,” says Patel, an assistant professor in the Department of Chemistry & Biochemistry and member of ARRTI. “When viruses infect cells, they use the cell’s own machinery to produce more copies of themselves. Our research is focused on investigating the mechanisms by which host proteins aid HBV replication, for example the transcription of the HBV DNA genome into RNA. Understanding such mechanisms could result in identification of target proteins, against which novel therapeutic molecules can be developed to treat HBV infection.”

The likelihood of developing chronic hepatitis after an acute infection depends on the age of the patient; 1-5 per cent in adults, 5-10 per cent in adolescents, 25-50 per cent in children aged one to five years, and 90 per cent for infants. After several decades, which are usually asymptomatic, 20-25 per cent of HBV carriers will develop cirrhosis of the liver, and 5-6 per cent will develop liver cancer (hepatocellular carcinoma, or HCC). Although there are good treatments to control the infection, there is no cure and many patients often require lifelong, expensive therapy.

Coffin has been an associate professor in the Cumming School of Medicine at the University of Calgary since 2009. She was co-chair of the 2018 Canadian Association for the Study of the Liver Management of HBV Guidelines Committee and served on the

World Health Organization Expert Advisory Committee for Essential Medicines (HBV and HCV). Her clinical and bench laboratory research aims to help better identify hepatitis B patients who would benefit from therapy, as well as developing better HBV therapeutics. Through her collaboration with Patel, the Canadian Institute for Health Research funded a fellowship through the Canadian Hepatitis C Network for Dr. Vanessa Meier-Stephenson to also participate in the work.

Her talk, Hepatitis B Virus Persistence, takes place Thursday, Mar. 8 at 3 p.m. in room C756 at the University of Lethbridge, and is open to the public. ARRTI has been holding the ARRTI Speaker Series since 2014, in which researchers, both local and external, are invited to speak about their current research in RNA and related topics. This year, in recognition of its influence, the ARRTI Speaker Series is sponsored by the International RNA Society as part of its RNA Salon initiative to promote RNA-related research.

For more information about Coffin, Patel or ARRTI, visit these websites:

<https://www.ucalgary.ca/girg/membership/coffinc>

<http://trpatel.com/>

www.ulethbridge.ca/research/ARRTI

To view online: <http://www.uleth.ca/unews/article/university-lethbridge-and-university-calgary-researchers-collaborate-tackle-hepatitis-b>

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