Gemphire Therapeutics Presents Data at American Heart Association (AHA) Scientific Sessions Showing that Gemcabene Significantly Reduces Atherogenic Remnant Lipoprotein and LDL-C as Add-on to Statins in a Cardiometabolic Population and Reports Third Quarter 2017 Financial Results

November 13, 2017 1:30 PM ET

Gemcabene reduced LDL-C by 20% and hsCRP by 53% when added to moderate intensity statin therapy

In cardiometabolic patients gemcabene improves atherogenic burden and reduces inflammation

LIVONIA, Mich., Nov. 13, 2017 (GLOBE NEWSWIRE) -- Gemphire Therapeutics Inc. (NASDAQ:GEMP), a clinical-stage biopharmaceutical company focused on developing and commercializing therapies for cardiometabolic disorders, including dyslipidemia and NASH, today announced the presentation of pre-clinical and clinical study results, its financial results for the three and nine month periods ended September 30, 2017, and provided a corporate update. The study results were featured in poster presentations Sunday November 12th and today at the American Heart Association® (AHA) in Anaheim, California.

“The third quarter of 2017 was marked by great progress in advancing gemcabene in dyslipidemia and NASH,” said Steven Gullans, Ph.D., interim CEO of Gemphire. “ROYAL-1 was the second of two recent Phase 2b studies to successfully meet its primary endpoint, and new data from ROYAL-1 presented at the American Heart Association meeting have given us further insights into gemcabene’s benefits to patients. We are now preparing for end of Phase 2 meetings for the hypercholesterolemia indications with the FDA and EMA and anticipate that these will take place early in 2018, with the goal of reaching agreement on the overall design of the planned Phase 3 development program. We are also moving forward in NASH, and plan to begin a Phase 2 trial before year end 2017.”

American Heart Association Scientific Sessions 2017

- **Final results for ROYAL-1 Clinical Data: Gemcabene Add-on Therapy to High- and Moderate-Intensity Statin Stratums in Hypercholesterolemic Patients**
  - Greater effects were observed in a cardiometabolic population, patients with mixed dyslipidemia, who have a particularly high atherogenic particle burden. In the mixed dyslipidemia group of patients, gemcabene 600 mg demonstrated a placebo adjusted LDL-C reduction of 23% ($p < 0.05$).
  - Consistent with the gemcabene’s mechanism of action, patients with mixed dyslipidemia showed greater placebo adjusted reductions in non-HDL-C by 19%, ApoB by 26%, ApoE by 34% and triglycerides (TGs) by 33%.
  - Gemcabene treatment was associated with a significant median reduction in high-sensitivity C-reactive protein (hsCRP) of 40%, compared to 6% for those treated by placebo. The reductions in hsCRP were 53% and 33% for those on moderate- and high-intensity statins, respectively, vs 6% for placebo. hsCRP is a plasma protein that serves as a biomarker for inflammation and there is growing acceptance that reducing hsCRP as a marker of reduced inflammation is correlated with reductions in major adverse cardiovascular events (MACE).
  - Patients with NASH have many overlapping co-morbidities with cardiometabolic patients. Gemcabene lowers high levels of LDL-C, triglyceride, and hsCRP levels that are associated with NASH. NASH patients have significant liver fat deposits which produce a plethora of CVD risk factors, leaving NASH patients with a much higher risk of cardiovascular events which are the number one cause of death in this population. Gemcabene’s ability to significantly clear VLDL and greatly reduce inflammation (hsCRP), may play a key role in easing the cardiometabolic burden on both the liver and heart.

- **Poster Session on MOA at the Heart Meeting:**
  - Titled “An Orally Administered Small Molecule that Inhibits Hepatic Sulfatase-2 Expression In Vivo: A Novel Strategy to Correct Diabetic Dyslipoproteinemia with Implications for Residual Atherosclerotic Cardiovascular Disease (ASCVD) Risk,” was presented by Charles L. Bisgaier, Daniela C. Oniciu and Kevin J. Williams.
  - Sulfatase-2 enzyme (SULF2) has been identified as a key biologic target in ASCVD. Obesity and type 2

diabetes (T2DM) cause hepatic overexpression of SULF2. SULF2 inhibits hepatic disposal of cholesterol- and triglyceride-rich remnant ApoB-lipoproteins (C-TRLs) also known as atherogenic remnant lipoproteins in human T2DM.

- Treatment with gemcabene lowered hepatic SULF2 and ApoC-III expression. These reductions in SULF2 and ApoC-III mRNA levels correlated with reductions in plasma triglycerides.
- Gemcabene may enhance clearance of C-TRLs via downregulation of hepatic SULF2, independent of LDLR mRNA.

To view the posters, please refer to the Events and Presentations section of the company website.

Third Quarter and Recent Corporate Highlights

- **August: Announced topline ROYAL-1 Phase 2b data,**
  - Gemcabene achieved the primary endpoint for a significant LDL-C reduction in hypercholesterolemic patients on stable high/moderate intensity statin and/or ezetimibe therapy.
- **September: Presented new COBALT-1 Clinical Data at the 2017 FH Global Summit,**
  - COBALT-1 achieved its primary endpoint, showing a statistically significant reduction in LDL-C compared to baseline at 12 weeks (p=0.0035).
  - Gemcabene is efficacious in both Homozygous Familial Hypercholesterolemia (HoFH) and Heterozygous Familial Hypercholesterolemia (HeFH) patients. LDL-C decreased by 30% overall and 38% in HeFH patients with gemcabene 600 mg.
  - Validated MOA by lowering LDL-C in HoFH patients with null/null LDL receptors (no LDL receptor activity).
  - Gemcabene 600 mg was well tolerated by statin intolerant patients and reductions in LDL-C of up to 51% were observed.
- **October: Presented poster at The Liver Meeting®, the annual meeting of the Association for the Study of Liver Diseases (AASLD),**
  - Data supported clinical evaluation of gemcabene as a potential treatment for NAFLD/NASH.
  - Clinical trial in NAFLD/NASH is planned to begin in the fourth quarter of 2017.

Upcoming 2017 and 2018 Clinical Milestones

- Gemphire is preparing for end of Phase 2 meetings with both the FDA and EMA, anticipated to take place in early 2018. The primary focus of these meetings will be to reach agreement on the design of the Phase 3 development programs for gemcabene in hypercholesterolemia indications.
- Top-line results from the INDIGO-1 Phase 2b trial in severe hypertriglyceridemia (SHTG) are targeted for the second quarter of 2018 based on the current pace of enrollment and the unexpected impact of hurricanes Harvey, Irma and Maria on many of the clinical sites.
- A Phase 2 clinical development program in NASH is targeted to begin in the fourth quarter of 2017 with top-line results targeted for second half of 2018.

Third Quarter 2017 Financial Update and Guidance

The primary drivers of the increase in G&A expenses over the prior year third quarter and nine-month periods were increased infrastructure costs to support the ongoing clinical trials and public company requirements, focused primarily in personnel costs, including non-cash equity compensation expense, professional services and separation expenses related to our previous CEO recorded in the second quarter of 2017.

The increase in R&D expense was primarily attributable to increased clinical trial activities encompassing two separate Phase 2b and four separate Phase 1 clinical trials ongoing in the current year period versus minimal expenses related to the initiation of one clinical study in the prior year period.

Cash used in operations in the nine months ended September 30, 2017 was $20.1 million compared to $7.4 million for the

nine months ended September 30, 2016.

In July, the Company entered into a term loan agreement for up to $15.0 million with Silicon Valley Bank, subject to funding in several tranches, and immediately drew $10.0 million to extend the cash runway for the ongoing development program for gemcabene. The remaining $5.0 million under the term loan may be drawn, at the Company's option, subject to the achievement of certain pre-clinical and clinical milestones, through July 31, 2018.

Management expects operating expenses and cash used in operating activities to continue to trend above 2016 levels, primarily in research and development, as the Company funds its ongoing clinical trials and initiates the NASH clinical program. Based on the Company's current operating plans, management believes existing cash, along with anticipated future proceeds from the July 2017 term loan agreement, is sufficient to fund operations through completion of our remaining dyslipidemia trial as well as completion of the planned NASH clinical trial anticipated to be completed in the second half of 2018 and will support the work to develop our Phase 3 study plans.

Gemcabene's mechanism of action and safety profile are highly differentiated from other clinical candidates

Gemphire's product candidate gemcabene is a first-in-class, once-daily, oral therapy that may be suitable for patients who are unable to achieve normal levels of LDL-C or triglycerides with currently approved therapies, primarily statins. Gemcabene's mechanism of action (MOA) is designed to enhance the clearance of very low-density lipoproteins (VLDLs) in the plasma and inhibition of the production of cholesterol and triglycerides in the liver. The combined effect of these mechanisms has been clinically observed to result in a reduction of plasma non-HDL-C, VLDL-C, LDL-C, apolipoprotein B and triglycerides. In addition, gemcabene has been shown to markedly lower C-reactive protein in humans and improve insulin sensitization. Gemcabene's MOA is liver-directed involving downregulation of hepatic apolipoprotein C-III (apoC-III) mRNA expression and decrease of plasma apoC-III levels. Gemcabene also reduces acetyl-CoA carboxylase (ACC1) and CCR2/CCR5 receptor mRNA levels, markers involved in the progression of non-alcoholic steatohepatitis (NASH)/non-alcoholic fatty liver disease (NAFLD). Gemcabene has demonstrated proof of concept efficacy for NASH in the rodent STAM™ model developed at SMC Laboratories in Tokyo, Japan. Gemcabene has been tested as monotherapy and in combination with statins and other drugs in 956 subjects across 20 Phase 1 and Phase 2 clinical trials. Given this profile of efficacy across multiple pathological pathways, as well as evidence of safety and tolerability, particularly when used as an add-on to many other therapeutic drugs, gemcabene has attributes that support studies in humans for NASH.

About Gemphire

Gemphire is a clinical-stage biopharmaceutical company that is committed to helping patients with cardiometabolic disorders, including dyslipidemia and NASH. The Company is focused on providing new treatment options for cardiometabolic diseases through its complementary, convenient, cost-effective product candidate gemcabene as add-on to the standard of care, especially statins, that will benefit patients, physicians, and payors. Gemphire has initiated 3 clinical trials for homozygous familial hypercholesterolemia (HoFH), heterozygous familial hypercholesterolemia (HeFH)/atherosclerotic cardiovascular disease (ASCVD), and severe hypertriglyceridemia (SHTG) under NCT02722408, NCT02634151, and NCT02944383, respectively, with a fourth planned trial in NASH to initiate in the fourth quarter of 2017. Please visit www.gemphire.com for more information.

Forward Looking Statements

Any statements in this press release about Gemphire's future expectations, plans and prospects, including statements about Gemphire's financial prospects, future operations and sufficiency of funds for future operations, clinical development of Gemphire's product candidate, expectations regarding future clinical trials, regulatory submissions and meetings and future expectations and plans and prospects for Gemphire, expectations regarding operating expenses and cash used in operations, and other statements containing the words "believes," "anticipates," "estimates," "expects," "intends," "plans," "predicts," "projects," "targets," "may," "potential," "will," "would," "could," "should," "continue," "scheduled" and similar expressions, constitute forward-looking statements within the meaning of The Private Securities

Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including: the success and timing of Gemphire's regulatory submissions and pre-clinical and clinical trials; regulatory requirements or developments; changes to Gemphire's clinical trial designs and regulatory pathways; changes in Gemphire's capital resource requirements; Gemphire's ability to obtain additional financing; Gemphire's ability to successfully market and distribute its product candidate, if approved; Gemphire's ability to obtain and maintain its intellectual property protection; and other factors discussed in the "Risk Factors" section of Gemphire's Annual Report on Form 10-K for the year ended December 31, 2016, Gemphire's Quarterly Report on Form 10-Q for the quarter ended September 30, 2017 and in other filings Gemphire makes with the SEC from time to time. In addition, the forward-looking statements included in this press release represent Gemphire's views as of the date hereof. Gemphire anticipates that subsequent events and developments will cause Gemphire's views to change. However, while Gemphire may elect to update these forward-looking statements at some point in the future, Gemphire specifically disclaims any obligation to do so. These forward-looking statements should not be relied upon as representing Gemphire's views as of any date subsequent to the date hereof.

Contact:
Andrew McDonald, Ph.D.
LifeSci Advisors, LLC
(646) 597-6987

Jeff Mathiesen, CFO
Gemphire Therapeutics Inc.
(734)-245-1700

Gemphire Therapeutics Inc.
Balance Sheet Data
(in thousands)

	September 30, 2017 (unaudited)	December 31, 2016
Cash and cash equivalents	$ 25,340	$ 24,033
Total assets	26,211	24,754
Accounts payable and accrued liabilities	6,295	4,121
Term loan	9,964	—
Total liabilities	16,262	4,122
Common stock	18	17
Additional paid–in capital	63,659	47,674
Accumulated deficit	(53,728)	(27,059)
Total stockholders' equity	9,949	20,632

Condensed Statements of Comprehensive Loss
(in thousands, except per share amounts)

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2017	2016	2017	2016
	(unaudited)		(unaudited)	
Operating expenses:				
General and administrative	$ 2,050	$ 1,466	$ 8,951	$ 3,567
Research and development	6,489	1,936	17,606	3,901
Total operating expenses	8,539	3,402	26,557	7,468
Loss from operations	(8,539)	(3,402)	(26,557)	(7,468)
Interest and other income (expense), net	(132)	(476)	(112)	96
Net loss	(8,671)	(3,878)	(26,669)	(7,372)
Adjustment to redemption value on Series A convertible preferred stock	—	(67)	—	(366)
Net loss attributable to common stockholders	$ (8,671)	$ (3,945)	$ (26,669)	$ (7,738)
Net loss per share:				
Basic and diluted	$ (0.82)	$ (0.56)	$ (2.60)	$ (1.65)
Number of shares used in per share calculations:				
Basic and diluted	10,624	6,984	10,253	4,704

Gemphire Therapeutics Inc.