

University of Massachusetts Medical School

eScholarship@UMMS

---

UMass Center for Clinical and Translational  
Science Research Retreat

2014 UMass Center for Clinical and  
Translational Science Research Retreat

---

May 20th, 12:30 PM

## Mice Deficient in SFRP1 Exhibit Increased Adiposity, Dysregulated Glucose Metabolism

Lotfi M. Bassa

*University of Massachusetts Amherst*

*Et al.*

Let us know how access to this document benefits you.

Follow this and additional works at: [https://escholarship.umassmed.edu/cts\\_retreat](https://escholarship.umassmed.edu/cts_retreat)



Part of the [Biochemistry Commons](#), [Cellular and Molecular Physiology Commons](#), and the [Translational Medical Research Commons](#)

---

Bassa LM, Gauger KJ, Henchey EM, Brown M, Schneider SS. (2014). Mice Deficient in SFRP1 Exhibit Increased Adiposity, Dysregulated Glucose Metabolism. UMass Center for Clinical and Translational Science Research Retreat. Retrieved from [https://escholarship.umassmed.edu/cts\\_retreat/2014/posters/22](https://escholarship.umassmed.edu/cts_retreat/2014/posters/22)

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 3.0 License](#).

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact [Lisa.Palmer@umassmed.edu](mailto:Lisa.Palmer@umassmed.edu).

MICE DEFICIENT IN SFRP1 EXHIBIT INCREASED ADIPOSITY,  
DYSREGULATED GLUCOSE METABOLISM.

Lotfi M. Bassa, Kelly J. Gauger, Elizabeth M. Henchey, Melissa Brown, , and Sallie S. Schneider

*Department of Veterinary and Animal Science, University of  
Massachusetts Amherst. Pioneer Valley Life Science Institute, Springfield,  
MA*

Contact Info: [lbassa@cns.umass.edu](mailto:lbassa@cns.umass.edu), [Sallie.Schneider@bhs.org](mailto:Sallie.Schneider@bhs.org)

The molecular mechanisms involved in the development of obesity and related complications remain unclear. Wnt signaling plays an important role in preadipocyte differentiation and adipogenesis. The expression of a Wnt antagonist, secreted frizzled related protein 1 (SFRP1), is increased in response to initial weight gain, then levels are reduced under conditions of extreme obesity in both humans and animals. Here we report that loss of *Sfrp1* exacerbates weight gain and glucose homeostasis in mice in response to diet induced obesity (DIO). *Sfrp1*<sup>-/-</sup> mice fed a high fat diet (HFD) exhibited an increase in body mass accompanied by increases in body fat percentage, visceral WAT mass, and adipocyte size. Fasting glucose levels are elevated, glucose clearance is impaired, hepatic gluconeogenesis regulators are aberrantly upregulated, and glucose transporters are repressed in *Sfrp1*<sup>-/-</sup> mice fed a HFD. Additionally, we observed increased steatosis in the livers of *Sfrp1*<sup>-/-</sup> mice. Our findings demonstrate that the expression of *Sfrp1* is a critical factor required for maintaining appropriate cellular signaling in response to the onset of obesity.