The prevalence of overweight and obesity is increasing at an alarming rate worldwide, driven by social and economic changes. Obesity is involved in the pathogenesis of major diseases, especially diabetes and cardiovascular disease. Yet there are no sufficiently safe and effective obesity drugs on the market today. This report analyzes:

- Product pipelines;
- Current obesity drugs and the need for novel therapies;
- Obesity drug markets;
- Challenges to the successful development of obesity drugs;
- The complex disease pathways of obesity and weight regulation.

*Continued on next page*
Many public health experts classify the rise in obesity as an epidemic. Largely as the result of increased risk for diabetes and cardiovascular disease, obesity carries an increased risk of premature death. According to an estimate by the US Centers for Disease Control, approximately 112,000 deaths per year are associated with obesity. Obesity drugs, however, have been dogged by safety issues that, in some cases, have resulted in market withdrawal. Obesity Drug Pipeline: Developing Therapies for a Complex Disease examines the demand and potential market for novel obesity treatments that are safe and truly effective.

The report also describes why the physiology of weight control is so complex. Disease pathways of obesity are poorly understood and appear to be dependent on many genetic and environmental factors. Researchers and companies have been using what is known about energy balance pathways to design obesity drugs, as will be discussed. The report also describes efforts underway to better understand the complex genetics of human obesity and how these findings can inform obesity drug discovery.

General barriers to the successful development of obesity drugs are discussed, including the societal perception of obesity as a “lifestyle issue,” not a medical/pharmacological one. Despite the extensive basic science that indicates that obesity is a disease, which like other metabolic and cardiovascular diseases has a complex causation (i.e., genetic, physiological, lifestyle, environmental, etc.), the traditional view that obesity is merely an issue of willpower and lifestyle, and even a cosmetic issue, dies hard. In particular, the idea that obesity is a lifestyle issue and not a disease affects reimbursement, which may constitute a significant hurdle to the development of obesity drugs.

Luckily, not all experts agree that these factors constitute an insuperable hurdle to the successful development and commercialization of new obesity drugs. Only two drugs are approved in the United States for long-term treatment of obesity: sibutramine (Abbott’s Meridia/Reductil) and orlistat (Roche’s Xenical and GlaxoSmithKline’s low-dose, over-the-counter form, alli). Both are minimally efficacious and have significant side effects, which tend to discourage their use.

Obesity Drug Pipeline: Developing Therapies for a Complex Disease reviews next-generation obesity drugs, including late-stage development programs as well as select early-stage approaches to developing obesity drugs. We conclude with expert interviews and an analysis of results from CHI’s Obesity Drug Discovery & Development Survey, conducted in July 2008.
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Appendix A: Expert Interviews
Olivier Boss, PhD, Associate Director of Biology, Sirtris, Cambridge, MA
Peter Y. Tam, Senior Vice President of Product and Corporate Development, Vivus, Mountain View, CA
David A. Walsey, Director, Corporate Communications, Arena Pharmaceuticals, San Diego, CA

Appendix B: Results from CHI’s Antiobesity Drug Discovery and Development Survey—July 2008

1. Please classify your organization.
2. What is your company’s most advanced stage of involvement in discovery and development of obesity drugs?
3. If your company has obesity drugs in development, what stages are they in?
4. What aspect(s) of obesity do your discovery research and drug candidates address?
5. What do you believe is the greatest bottleneck to the development of successful obesity drugs?
6. Why do you believe that healthcare providers are reluctant to reimburse for obesity drugs?
7. Do you believe that if a company developed a safer and more efficacious antiobesity drug than current agents, it would have fewer problems gaining reimbursement?
8. Do you believe that any of the late-stage obesity drugs now in development will be approved in the next 1 to 3 years, and be shown to be safer and/or more efficacious than current agents?

References

Company Index with Web Addresses
Diabetes and Its Complications: Strategies to Advance Therapy and Optimize R&D

In the US, almost 21 million people have diabetes, and an estimated 54 million people are prediabetic, according to the ADA. The direct medical costs related to diabetes complications in 2006 alone amounted to $22.9 billion. Complications include heart attack, chronic kidney disease, congestive heart failure, stroke, coronary heart disease, foot problems, and eye damage.

This report gives a complete picture of today's therapeutic landscape.

- Background for understanding the nature, epidemiology, pathobiology, and cost of diabetes
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- The pathogenesis of type 2 diabetes and its relationship to obesity
- Current diagnosis and treatment modalities for diabetes
- An evaluation of competitors in the diabetes market—pipelines and specific products, alliances, and therapeutic focus
- Assessment of novel classes of antidiabetics that include drugs introduced into the market in 2005 and 2006, as well as drugs in still newer classes now in corporate pipelines
- Assessment of leading research and preclinical-stage drugs, and novel therapeutic strategies for type 2 diabetes
- Assessment of agents in development for diabetic complications
- The market outlook for new antidiabetic drugs

The report also includes a survey conducted by CHI in January 2007 of the views and plans of individuals at the forefront of R&D for diabetes and its complications.

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Obesity Drug Pipeline: Developing Therapies for a Complex Disease

Obesity Drug Pipeline — September 2008 (104 pages)
Diabetes and Its Complications — May 2007 (190 pages)

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