

**ADOCIA**

innovative medicine  
for everyone, everywhere



## PRESS RELEASE

### **Adocia announces two new multi-hormonal combination projects for the treatment of type 1 diabetes**

- **BioChaperone® enables combinations of insulin lispro with pramlintide and insulin lispro with exenatide, three hormones approved for the treatment of diabetes.**
- **Medical benefit of such combinations already established in type 1 diabetes clinical trials with separate injections.**
- **New projects aim to offer more efficient therapy to people living with type 1 diabetes without increasing number of injections.**
- **First clinical study expected to start in Q4 2017.**

**Lyon, France, January 5, 2017** - Adocia (Euronext Paris: FR0011184241 – ADOC), a clinical stage biopharmaceutical company focused on diabetes treatment with innovative formulations of approved proteins, announced today the launch of two new projects employing its proprietary BioChaperone® technology: the combination of insulin lispro with pramlintide (amylin analogue, Symlin®, AstraZeneca) and the combination of insulin lispro with exenatide (GLP-1 receptor agonist, Byetta®, AstraZeneca).

*“People with type 1 diabetes are still in need of improved treatments which more closely mimic normal physiology. In these patients, it has actually been clinically proven that the simultaneous administration of pramlintide or exenatide with prandial insulin not only increases time spent in the target glycemic range but also helps to reduce insulin requirements and weight,”* said Gérard Soula, Chairman and CEO. *“We are working to provide such benefit to people with type 1 diabetes by combining insulin lispro with pramlintide or exenatide in one product, in order to restore the synchronized effects of the hormones without increasing the number of necessary injections.”*

Insulin is a life-saving therapy for people with type 1 diabetes. However, even optimally controlled patients using insulin exhibit profound glycemic variability and frequently fail to reach their treatment goals. This may be partly because, in people without diabetes, insulin, amylin and GLP-1 are secreted in synchrony and act in synergy to control blood glucose. In type 1 diabetes, ultimately, neither insulin nor amylin is secreted and GLP-1 secretion is deficient.

Both pramlintide, a short-acting amylin analog, and exenatide, a short-acting GLP-1 receptor agonist, have been approved for the treatment of type 1 and type 2 diabetes, respectively. It has been demonstrated in clinical trials that, when added to an existing insulin regimen, these molecules improve HbA1c and reduce prandial insulin consumption, weight gain, and side effects.<sup>1,2</sup>

However, insulin therapy for people with type 1 diabetes requires intense patient involvement, including multiple daily injections and frequent glucose monitoring. To maintain patient persistency, new treatment options in diabetes should not only demonstrate superior efficacy, but also avoid increasing the everyday burden of disease management, while remaining affordable.

*"The use of either pramlintide or exenatide together with prandial insulin has been championed by a number of investigators for some time, including myself, as clinical research results support a strong potential medical benefit. The BioChaperone approach might overcome the main obstacles that previously have limited the use of such combinations."* says Dr. Jay Skyler, MD, University of Miami, USA.

This formulation strategy, based on real-world clinical data with the separate hormones, could shorten development time. The BioChaperone projects also have the potential to support competitive pricing by leveraging approved, off-patent proteins.

*"These two innovative projects, BioChaperone Lispro Pramlintide and BioChaperone Lispro Exenatide, further illustrate our strong commitment to improve diabetes care. Our portfolio of products is significantly strengthened by these complementary projects."* said Olivier Soula, Deputy General Manager – R&D Director. *"Based on established expertise in developing innovative formulations with our BioChaperone technology, we aim to test one of these candidates in a clinical study in Q4 2017."*

**About pramlintide:** pramlintide (Symlin<sup>®</sup>, AstraZeneca), an amylin agonist, is the only hormonal product, in addition to insulin, which is approved for the treatment of type 1 diabetes. Like amylin, which is co-secreted with insulin in normal physiology but absent in people with type 1 diabetes, pramlintide improves postprandial glucose control by suppressing abnormal secretion of glucagon at mealtime, increasing satiety and decreasing the rate of gastric emptying towards normal. In people with type 1 diabetes, pramlintide administered three times a day in addition to prandial and basal insulin has demonstrated improved HbA1c, a reduction in prandial insulin doses, and weight loss after 6 months of use.

**About exenatide:** short-acting exenatide (Byetta<sup>®</sup>, AstraZeneca), a short-acting GLP-1 receptor agonist, has been approved since 2005 for the treatment of type 2 diabetes with or without insulin. Short-acting GLP-1 agents have a similar action profile to that of physiologic

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<sup>1</sup> Karl D, et al. *Diabetes Technol Ther* 2007; 9(2):191-199.

<sup>2</sup> Raman VS, et al. *Diabetes Care* 2010 Jun; 33(6): 1294-1296.

GLP-1, and act in synergy with insulin to decrease blood glucose after a meal. In people with type 1 diabetes, the level of secretion of GLP-1 is abnormally low and it has been demonstrated in clinical studies that the addition of exenatide on top of prandial and basal insulin greatly improves reducing glucose excursion even with a 20% lower dose of prandial insulin. In people with type 2 diabetes, exenatide administered twice daily on top of prandial and basal insulin has demonstrated improved HbA1c, a reduction in prandial insulin doses, and weight loss after 6 months of use.

## About ADOCIA

Adocia is a clinical-stage biotechnology company that specializes in the development of innovative formulations of already-approved therapeutic proteins. Adocia's insulin formulation portfolio, featuring four clinical-stage products and one preclinical product, is among the largest and most differentiated in the industry.

The proprietary BioChaperone® technological platform is designed to enhance the effectiveness and/or safety of therapeutic proteins while making them easier for patients to use. Adocia customizes BioChaperone to each protein for a given application in order to address specific patient needs.

Adocia's clinical pipeline includes four novel insulin formulations for the treatment of diabetes: two ultra-rapid formulations of insulin analogs (BioChaperone Lispro U100 and U200), a rapid-acting formulation of human insulin (HinsBet U100) and a combination of basal insulin glargine and rapid-acting insulin lispro (BioChaperone Combo). Adocia is also developing an aqueous formulation of human glucagon (BioChaperone Human Glucagon), two combinations of insulin glargine with GLP-1s (BioChaperone Glargine Dulaglutide and BioChaperone Glargine Liraglutide), two combinations of insulin lispro with synergistic prandial hormones (BioChaperone Lispro Pramlintide and BioChaperone Lispro Exenatide), and a concentrated, rapid-acting formulation of human insulin (HinsBet U500), all of which are in preclinical development.

In December 2014, Adocia signed a partnership with Eli Lilly for the development and commercialization of the BioChaperone Lispro projects.

*Adocia aims to deliver "Innovative medicine for everyone, everywhere."*

To learn more about Adocia, please visit us at [www.adocia.com](http://www.adocia.com)



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