PRESS RELEASE

**Innovation in Drug Development: Morphinan Compounds Without Risk of Addiction**

**The modification of an active ingredient found in cough suppressants not only offers the chance of a new drug on the market, but also the possibility of developing morphine and other opiates without addictive potential in the future. What exactly does this mean? And what are the benefits for those affected?**

**Düsseldorf (DDZ) –** Many active ingredients cross the blood-brain barrier and cause undesirable side effects in the central nervous system (CNS). This is the case with some drugs (antihistamines) that especially in the spring are used in the treatment of allergies. The same applies to many highly effective pain relievers. The further development of these effective active ingredients into new drugs that do not cause central adverse effects is therefore of great importance.

Prof. Dr. Lammert, director of the Institute for Vascular and Islet Cell Biology at the German Diabetes Center (DDZ), an institute of the German Center for Diabetes Research (DZD), as well as head of the Institute for Metabolic Physiology at Heinrich Heine University (HHU) Düsseldorf, together with his team and colleagues from Düsseldorf University Hospital (UKD) and chemists from Dortmund, has now chemically modified a cough-suppressing active ingredient that is contained in Silomat and Wick MediNait. Professor Lammert was particularly interested in the active ingredient "dextromethorphan", which is chemically related to morphine, because it is not only a cough suppressant but also has many other positive effects. These include relieving pain and lowering blood glucose levels in people with diabetes mellitus. His team has modified dextromethorphan so that it passes the blood-brain barrier to a significantly lower extent. It therefore does not cause adverse effects such as dizziness and fatigue, but nevertheless fully develops its positive effects in peripheral tissues, including the protection of human pancreatic cells from cell death. "The observation that the new agents have significantly fewer side effects makes them interesting candidates for the future of diabetes therapy," said Professor Michael Roden, scientific director and board member of the DDZ. "Despite the availability of numerous drugs for diabetes therapy, there is still a need for more effective and better tolerated forms of therapy for targeted diabetes treatment."

For the future, Professor Lammert also sees the possibility of developing opiates and morphine without addictive potential. After he and his team received a US patent for these new active substances in 2019, the study was published this week in the renowned US journal [*Cell Chemical Biology*](https://www.cell.com/cell-chemical-biology/pdf/S2451-9456(21)00256-7.pdf). Now, together with Heinrich Heine University (HHU) and with the support of the German Diabetes Center (DDZ), a company is to be founded to further develop these active substances into new, innovative drugs. Professor Lammert said, "As a society, we are called upon to fight diseases better than in the past. Unfortunately, the research on more effective therapies is associated with many risks, but – as we could see with the vaccines against Covid-19 – sometimes quite worthwhile for society."

**Original Publication:**

Scholz, O., Otter, S., Welters, A., Wörmeyer, L., Dolenšek, J., Klemen, S.M., Pohorec, V., Eberhard, D., Mrugala, J., Hamacher, A., Koch, A., Sanz, M., Hoffmann, T., Hogeback, J., Herebian, D., Klöcker, N., Piechot, A., Mayatepek, E., Lammert, E.: [Peripherally active dextromethorphan derivatives lower blood glucose levels by targeting pancreatic islets.](https://www.sciencedirect.com/science/article/abs/pii/S2451945621002567?via%3Dihub) Cell Chemical Biology. 2021, 11 June, DOI: <https://doi.org/10.1016/j.chembiol.2021.05.011>

The German Diabetes Center (DDZ) is a German reference center for diabetes. Its objective is to contribute to the prevention, early detection, diagnosis and treatment of diabetes mellitus. At the same time, the research center aims at improving the epidemiological data situation in Germany. DDZ is in charge of the multicenter German Diabetes Study and serves as point of contact for all players in the health sector. In addition, it prepares scientific information on diabetes mellitus and makes it available to the public. DDZ is part of the Leibniz Association (Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz, WGL) and is a partner of the German Center for Diabetes Research (DZD). [www.ddz.de/en](http://www.ddz.de/en)

**Recent press releases of the DDZ are available at** [**http://www.ddz.de/**](http://www.ddz.de/)

**DDZ’s press photos may only be used for editorial purposes and must be credited to us with the statement: "Source: DDZ e.V.". There is no charge for the use of the photos, but please send us a copy or reference to the place of publication.**

**For more information, please contact::**

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | Gordon McBane  Head, Press and Public Relations  German Diabetes Center (DDZ)  Leibniz Center for Diabetes Research  at the Heinrich Heine University of Düsseldorf  Phone: 0211-3382-450  email: [Gordon.McBane@ddz.de](mailto:Gordon.McBane@ddz.de) |  | |