UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD
MYLAN PHARMACEUTICALS INC.,
Petitioner,
v.
NOVO NORDISK A/S,
Patent Owner.
Case No. IPR2023-00723
Patent No. 8,129,343

DECLARATION OF JOHN BANTLE, M.D., IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 8,129,343



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TABLE OF ABBREVIATIONS

Full Name of Cited Reference	Abbreviation
U.S. Patent No. 8,536,122	'122 patent
U.S. Patent No. 8,129,343	'343 patent
U.S. Patent No. 5,512,549	'549 patent
U.S. Patent No. 6,284,727	'727 patent
Baggio, Glucagon-like Peptide 1 and Glucagon-like Peptide 2, 18 Best Prac. & Rsch. Clinical Endocrinology & Metabolism 531 (2004)	Baggio 2004b
Banting, <i>The Internal Secretion of the Pancreas</i> , 7 J. LAB. CLINICAL MED. 251 (1922)	Banting
Bell, Hamster Preproglucagon Contains the Sequence of Glucagon and Two Related Peptides, 302 NATURE 716 (1983)	Bell
U.S. Patent No. 6,514,500	Bridon
Dong, Glucagon-Like Peptide-1 Analogs with Significantly Improved in vivo Activity, in Peptides: The Wave of the Future (Michal Lebl et al. eds., 2001)	Dong
Drucker, Enhancing Incretin Action for the Treatment of Type 2 Diabetes, 26 Diabetes Care 2929 (2003)	Drucker 2003
Giannoukakis, <i>CJC-1131 ConjuChem</i> , 4(10) CURRENT OP. IN INVESTIGATIONAL DRUGS 1245 (2003)	Giannoukakis
Gutniak, Antidiabetogenic Effect of Glucagon-Like Peptide-1 (7-36) Amide in Normal Subjects and Patients with Diabetes Mellitus, 326 New Eng. J. Med. 1316 (1992)	Gutniak
HARRISON'S PRINCIPLES OF INTERNAL MED., Chapter 333 (Braunwald et al. eds. 15th ed. 2001)	Harrison's
Holst, Truncated Glucagon-like Peptide I, an Insulin-Releasing Hormone from the Distal Gut, 211 (2) FEBS LETTERS 169 (1987)	Holst
Holst, The Incretin Approach for Diabetes Treatment: Modulation of Islet Hormone Release by GLP-1 Agonism, 53 (suppl. 3) DIABETES S197 (2004)	Holst 2004



TABLE OF ABBREVIATIONS

(continued)

Full Name of Cited Reference	Abbreviation
Holst, Glucagon-Like Peptide 1 and Inhibitors of Dipeptidyl Peptidase IV in the Treatment of Type 2 Diabetes Mellitus, 4 Current Op. in Pharm. 589 (2004)	Holst 2004b
Knudsen, GLP-1 Derivatives as Novel Compounds for the Treatment of Type 2 Diabetes: Selection of NN2211 for Clinical Development, 26(7) DRUGS OF THE FUTURE (2001)	Knudsen 2001
Knudsen, Glucagon-Like Peptide-1: The Basis of a New Class of Treatment for Type 2 Diabetes, 47(17) J. MED. CHEM. 4128 (2004)	Knudsen 2004
U.S. Patent No. 6,268,343	Knudsen patent
Madsbad, Improved Glycemic Control with No Weight Increase in Patients with Type 2 Diabetes After Once-Daily Treatment with the Long-Acting Glucagon-Like Peptide 1 Analog Liraglutide (NN2211): A 12-Week, Double-Blind, Randomized, Controlled Trial, 27 DIABETES CARE 1335 (2004)	Madsbad
Mojsov, Insulinotropin: Glucagon-like Peptide I (7-37) Coencoded in the Glucagon Gene is a Potent Simulator of Insulin Release in the Perfused Rat Pancreas, 79 J. CLINICAL INVESTIGATION 616 (1987)	
Nauck, Normalization of Fasting Hyperglycaemia by Exogenous Glucagon-Like Peptide 1 (7-36 amide) in Type 2 (Non-Insulin-Dependent) Diabetic Patients, 36 DIABETOLOGIA 741 (1993)	Nauck
Ørskov, Biological Effects and Metabolic Rates of Glucagonlike Peptide-1 7–36 Amide and Glucagonlike Peptide-1 7–37 in Healthy Subjects are Indistinguishable, 42 DIABETES 658 (1993)	Orskov
Polonsky, What's So Tough About Taking Insulin? Addressing the Problem of Psychological Insulin Resistance in Type 2 Diabetes, 22(3) CLINICAL DIABETES 147 (2004)	Polonsky
WO 91/11457	WO457



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