



(12) **Translation of new European patent specification**
After opposition procedure

(11) **NO/EP 3033102 B2**

NORWAY
(19) NO
(51) Int Cl.

A61K 47/69 (2017.01)
A61K 39/00 (2006.01)

Norwegian Industrial Property Office

(45)	Translation Published	2020.01.27
(80)	Date of The European Patent Office Publication of the Granted Patent	2019.10.23
(45)	Decision of the opposition in EPO	2023.12.20
	Decision of the opposition in NIPO	2024.03.25
(86)	European Application Nr.	14836306.2
(86)	European Filing Date	2014.08.13
(87)	The European Application's Publication Date	2016.06.22
(30)	Priority	2013.08.13, US, 201361865389 P 2013.08.23, US, 201361869279 P 2013.10.04, US, 201361887112 P
(84)	Designated Contracting States:	AL ; AT ; BE ; BG ; CH ; CY ; CZ ; DE ; DK ; EE ; ES ; FI ; FR ; GB ; GR ; HR ; HU ; IE ; IS ; IT ; LI ; LT ; LU ; LV ; MC ; MK ; MT ; NL ; NO ; PL ; PT ; RO ; RS ; SE ; SI ; SK ; SM ; TR
	Designated Extension States:	BA ; ME
(73)	Proprietor	Northwestern University, 633 Clark Street, Evanston, IL 60208, USA
(72)	Inventor	SHEA, Lonnie D, in care of Northwestern University 633 Clark Street, Evanston Illinois 60208, USA MILLER, Stephen D., 633 Clark Street, Evanston Illinois 60208, USA YAP, Jonathan Woon Teck, in care of Northwestern University 633 Clark Street, Evanston Illinois 60208, USA GETTS, Daniel R., 3303 20th Street N.E., Washington District of Columbia 20018, USA MCCARTHY, Derrick, in care of Northwestern University 633 Clark Street, Evanston Illinois 60208, USA
(74)	Agent or Attorney	BRYN AARFLOT AS, Stortingsgata 8, 0161 OSLO, Norge

(54) Title **PEPTIDE CONJUGATED PARTICLES**

(56) References

Cited:

- EP-A1- 2 255 831, WO-A2-2012/065153, US-A1- 2008 207 515
 US-A1- 2012 076 831, US-A1- 2008 124 350, WO-A1-2010/060155
 US-A1- 2008 268 552, US-A1- 2009 123 509, US-A1- 2005 002 999
 US-A1- 2010 151 000, US-A1- 2013 202 659, WO-A2-2013/192532
 US-A1- 2009 325 931, WO-A1-2010/085509, WO-A2-2012/101638
 US-A1- 2009 304 726, WO-A1-2011/103588WO-A2-2014/160465
 KEEGAN et al.: "Biodegradable Microspheres with enhanced capacity for covalently bound surface ligands", Macromolecules, vol. 37, 2004, pages 9779-9784,
 S HONARY ET AL: "Effect of Zeta Potential on the Properties of Nano-Drug Delivery Systems - A Review (Part 2)", TROPICAL JOURNAL OF PHARMACEUTICAL RESEARCH, vol. 12, no. 2, 9 May 2013 (2013-05-09), XP55344823, NG ISSN: 1596-5996, DOI: 10.4314/tjpr.v12i2.20
 S. SENGER ET AL: "Identification of Immunodominant Epitopes of -Gliadin in HLA-DQ8 Transgenic Mice following Oral Immunization", THE JOURNAL OF IMMUNOLOGY, vol. 175, no. 12, 8 December 2005 (2005-12-08), pages 8087-8095, XP055234593, US ISSN: 0022-1767, DOI: 10.4049/jimmunol.175.12.8087
 WAN-UK KIM ET AL: "Suppression of collagen-induced arthritis by single administration of poly(lactic-co-glycolic acid) nanoparticles entrapping type II collagen: A novel treatment strategy for induction of oral tolerance", ARTHRITIS & RHEUMATISM, vol. 46, no. 4, 1 April 2002 (2002-04-01), pages 1109-1120, XP055012144, ISSN: 0004-3591, DOI: 10.1002/art.10198
 Keegan Mark Edwin: "Biodegradable Microspheres with enhanced Capacity for Surface Ligand Conjugation", PhD Dissertation Cornell University, 1 May 2004 (2004-05-01), pages 1-118,
 Takami Akagi ET AL: "Biodegradable Nanoparticles as Vaccine Adjuvants and Delivery Systems: Regulation of Immune Responses by Nanoparticle-Based Vaccine" In: "Bioactive Surfaces", 1 January 2011 (2011-01-01), Springer Berlin Heidelberg, Berlin, Heidelberg, XP055215260, ISSN: 0065-3195 ISBN: 978-3-64-220155-4 vol. 247, pages 31-64, DOI: 10.1007/12_2011_150, * chapter 5.2 *
 LUDVIG M SOLLID ET AL: "Nomenclature and listing of celiac disease relevant gluten T-cell epitopes restricted by HLA-DQ molecules", IMMUNOGENETICS, SPRINGER, BERLIN, DE, vol. 64, no. 6, 10 February 2012 (2012-02-10), pages 455-460, XP035054204, ISSN: 1432-1211, DOI: 10.1007/S00251-012-0599-Z
 GONDEAU ET AL.: 'Design of a novel class of peptide inhibitors of cyclin-dependent kinase/cyclin activation' J BIOL CHEM. vol. 80, 13 January 2005, pages 13793 - 13800, XP004404215
 FABIENNE DANHIER ET AL: "PLGA-based nanoparticles: An overview of biomedical applications", JOURNAL OF CONTROLLED RELEASE, vol. 161, no. 2, 4 February 2012 (2012-02-04), pages 505-522, XP055051719, ISSN: 0168-3659, DOI: 10.1016/j.jconrel.2012.01.043

Enclosed is a translation of the patent claims in Norwegian. Please note that as per the Norwegian Patents Acts, section 66i the patent will receive protection in Norway only as far as there is agreement between the translation and the language of the application/patent granted at the EPO. In matters concerning the validity of the patent, language of the application/patent granted at the EPO will be used as the basis for the decision. The patent documents published by the EPO are available through Espacenet (<http://worldwide.espacenet.com>) or via the search engine on our website here:
<https://search.patentstyret.no/>

Patentkrav

- 1.** Sammensetning som omfatter overflatefunksjonaliserte biologisk nedbrytbare partikler omfattende innkapslet gliadin eller én eller flere antigene gliadinepitoper, hvori partikkelen har et negativt zetapotensiale og hvori partikkelen er mellom 0,1 µm og 10 µm i diameter, hvori partiklene har et zetapotensial på -100 mV til -40 mV, og hvori gliadinet eller én eller flere antigene gliadinepitoper omfatter én eller flere av sekvensene angitt i SEKV ID NR: 1295-1724, 1726-1766, 4983-4985 og 4986-5140.
- 2.** Sammensetning ifølge krav 1, hvori partiklene omfatter poly(laktid-ko-glykolid)(PLG).
- 3.** Sammensetning ifølge krav 1, hvori overflatefunksjonaliseringen er karboksylering, eventuelt hvori karboksyleringen oppnås ved å bruke poly(etylen-maleinsyreanhidrid) (PEMA).
- 4.** Sammensetning ifølge krav 1, videre omfattende farmasøytsk akseptable hjelpestoffer.