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[Continued on next page]

(54) Title: QUANTUM DOT CARRIER PEPTIDE CONJUGATES SUITABLE FOR IMAGING AND DELIVERY APPLICATIONS IN PLANTS

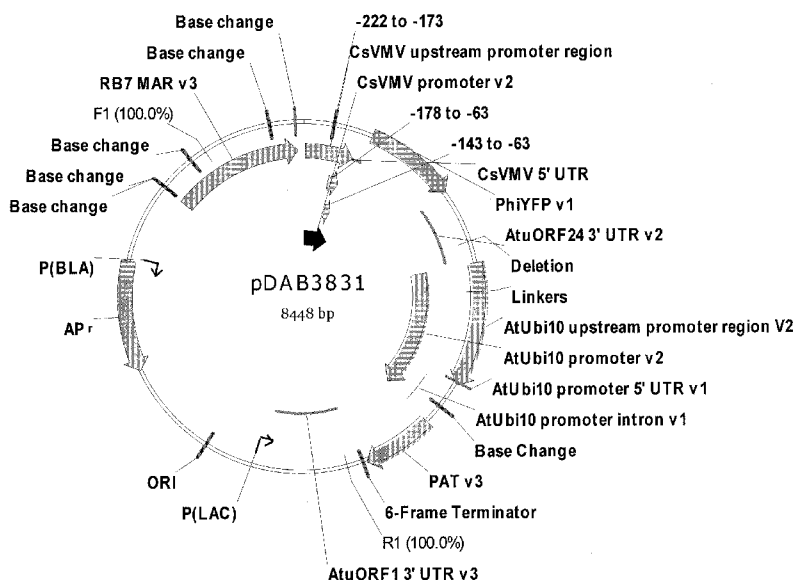


FIG. 1

(57) Abstract: Provided are methods for introducing a molecule of interest into a plant cell having a cell wall by using a QD peptide conjugate having a quantum dot (QD) with one or more cell penetrating peptides (CPPs). Methods are provided for genetically or otherwise modifying plants and for treating or preventing disease in plant cells comprising a cell wall.





SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted
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— with sequence listing part of description (Rule 5.2(a))

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A. CLASSIFICATION OF SUBJECT MATTER*C12N 15/87(2006.01)i, C12N 5/10(2006.01)i, C12N 5/04(2006.01)i, A01H 5/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C12N 15/87; A61K 9/14; C12N 5/02; A61K 38/19; A01H 5/00; C12N 5/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: cell penetrating peptide, quantum dot, nanoparticle, protein transduction domain

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	BETTY R. LUI et al., 'Cell-Penetrating Peptide-Functionized Quantum Dots for Intracellular Delivery', <i>Nanosci Nanotechnol</i> , Vol. 10(12), pp. 7897-7905 (December 2010). See Abstract, Pages 2, 3.	1-20
Y	JAMES B. DELEHANTY et al., 'Delivering quantum dot-peptide bioconjugates to the cellular cytosol: escaping from the endolysosomal system', <i>Integrative Biology</i> , Vol 2, pp. 265-277 (4 May 2010). See Whole-document.	1-20
A	US 2010-0311168 A1 (JAYAKUMAR P. SAMUEL et al.) 9 December 2010. See Abstract, Claims 1, 5-9, Paragraph 0060.	1-20
A	US 2006-0251726 A1 (JACKI LIN et al.) 9 November 2006. See Abstract, Claims 1, 18, 28, 29, 61.	1-20
A	US 2009-0104700 A1 (JAYAKUMAR P. SAMUEL et al.) 23 April 2009. See Abstract, Claim 1, Paragraphs 0033, 0131.	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/030195

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of :

a. a sequence listing filed or furnished

- on paper
- in electronic form

b. time of filing or furnishing

- contained in the international application as filed
- filed together with the international application in electronic form
- furnished subsequently to this Authority for the purposes of search

2. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/030195

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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