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(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) **Title:** DETECTION OF BIOPOLYMER INTERACTIONS, CANCER CELLS, AND PATHOGENS USING SPLIT-SUPERCHARGED GFP

(57) **Abstract:** Systems and methods for detecting protein-protein interactions and/or detecting a targeted cell using a split super-charged protein reporter system are described.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US13/42078

<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b>                  IPC(8) - C12Q 1/02; G01N 33/53 (2013.01)                  USPC - 435/29, 7.1, 7.2, 4; 506/7; 530/350                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p><b>B. FIELDS SEARCHED</b></p> <p>Minimum documentation searched (classification system followed by classification symbols)                  IPC(8): C12Q 1/02; G01N 33/53 (2013.01)                  USPC: 435/29, 7.1, 7.2, 4; 506/7; 530/350</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)                  Micropatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A; USPTO Web Page; DialogPRO; Google Scholar; Elsevier Science Direct; 'split supercharged green fluorescent protein,' 'spGFP,' 'N-terminal fusion,' 'C-terminal fusion,' 'targeting ligands,' 'cell surface targets,' 'HER2,' 'protein-protein-interactions'</p>																	
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 2012/0100569 A1 (LIU, DR et al.) April 26, 2012; paragraphs [0010], [0016], [0019], [0027], [0070], [0110], [0115], [0117], [0119], [0134], [0142], [0152], [0231], [0232], [0238], [0267], [0276], [0343], [0366], [0367], [0374], [0448]</td> <td>1-36</td> </tr> <tr> <td>Y</td> <td>US 2006/0257887 A1 (WALDO, GS et al.) November 16, 2006; figures 11, 26; paragraphs [0011], [0019], [0039], [0069], [0071], [0074], [0078], [0102], [0128], [0132], [0135], [0165]</td> <td>1-36</td> </tr> <tr> <td>Y</td> <td>US 2009/0170069 A1 (GHOSH, I et al.) July 2, 2009; abstract; figure 9; paragraphs [0007], [0028], [0046], [0048], [0050], [0066], [0070], [0076], [0086], [0095], [0134], [0202]</td> <td>1-36</td> </tr> <tr> <td>Y</td> <td>KARANICOLAS, J. et al. A de novo Protein Binding Pair By Computational Design And Directed Evolution. Mol. Cell. 22 April 2011, Vol. 42, No. 2, pages 250-260; pg 250, abstract; pg 255, paragraph 4. DOI: 10.1016/j.molcel.2011.03.010.</td> <td>12</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 2012/0100569 A1 (LIU, DR et al.) April 26, 2012; paragraphs [0010], [0016], [0019], [0027], [0070], [0110], [0115], [0117], [0119], [0134], [0142], [0152], [0231], [0232], [0238], [0267], [0276], [0343], [0366], [0367], [0374], [0448]	1-36	Y	US 2006/0257887 A1 (WALDO, GS et al.) November 16, 2006; figures 11, 26; paragraphs [0011], [0019], [0039], [0069], [0071], [0074], [0078], [0102], [0128], [0132], [0135], [0165]	1-36	Y	US 2009/0170069 A1 (GHOSH, I et al.) July 2, 2009; abstract; figure 9; paragraphs [0007], [0028], [0046], [0048], [0050], [0066], [0070], [0076], [0086], [0095], [0134], [0202]	1-36	Y	KARANICOLAS, J. et al. A de novo Protein Binding Pair By Computational Design And Directed Evolution. Mol. Cell. 22 April 2011, Vol. 42, No. 2, pages 250-260; pg 250, abstract; pg 255, paragraph 4. DOI: 10.1016/j.molcel.2011.03.010.	12
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<p>Date of the actual completion of the international search 26 September 2013 (26.09.2013)</p>		<p>Date of mailing of the international search report <b>02 OCT 2013</b></p>															
<p>Name and mailing address of the ISA/US                  Mail Stop PCT, Attn: ISA/US, Commissioner for Patents                  P.O. Box 1450, Alexandria, Virginia 22313-1450                  Facsimile No. 571-273-3201</p>		<p>Authorized officer:                  Shane Thomas                  PCT Helpdesk: 571-272-4300                  PCT OSP: 571-272-7774</p>															