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The Broad Institute Patent Rights Table

PCT Family	Patent Title	Applicants	Inventors	Priority Applications	Filing Date	Earliest Priority Date
PCT/US2013/074611	CRISPR-CAS Component Systems, Methods and Compositions for Sequence Manipulation.	Broad, MIT, Harvard and Rockefeller	Feng Zhang, Neville Sanjana, Le Cong, Luciano Marraffini, Patrick Hsu, Fei Ran, Randall Platt, Shuailiang Lin, David Cox, Wenyan Jiang, David Bikard	US201361757972P US201261736527P US201361835931P US201361768959P US201361748427P US201361791409P	12.12.2013	12.12.2012
PCT/US2013/074743	CRISPR-CAS Systems and Methods for Altering Expressions of Gene Products.	Broad and MIT	Feng Zhang	US201361748427P US201361791409P US201261736527P US201361835931P US201314054414 US201361842322P	12.12.2013	12.12.2012
PCT/US2013/051418	Inducible DNA Binding Proteins and Genome Perturbation Tools and Applications Thereof.	Broad, MIT and Harvard	Feng Zhang, Neville Sanjana, Silvana Konermann, Mark Brigham, Le Cong	US201361769046P US201361791409P US201361802174P US201361806375P US201361814263P US201361819803P US201361828130P US201361835931P US201361836080P US201261736527P US201361748427P US201361758468P	21.07.2013	25.07.2012

PCT/US2013/074825	Methods, Systems and Apparatus for Identifying Target Sequences for CAS Enzymes or CRISPR-CAS Systems for Target Sequences and Conveying Results Thereof.	Broad and MIT	Feng Zhang, Naomi Habib	US201361835931P US201261736527P US201361748427P US201361791409P	12.12.2013	12.12.2012
PCT/US2013/074812	Methods, Models, Systems and Apparatus for Identifying Target Sequences for CAS Enzymes or CRISPR-CAS Systems for Target Sequences and Conveying Results Thereof.	Broad, MIT and Harvard	Feng Zhang, Patrick Hsu, David Scott, Yinqing Li, Joshua Weinstein	US201361769046P US201361791409P US201361802174P US201361806375P US201361814263P US201361819803P US201361828130P US201361835931P US201361836080P US201261736527P US201361748427P US201361758468P	12.12.2013	12.12.2012
PCT/US2013/074667	Delivery, Engineering and Optimization of Systems, Methods and Compositions for Sequence Manipulation and Applications.	Broad, MIT and Harvard	Feng Zhang, Matthias Heidenreich, Fei Ran, Lukasz Swiech	US201361769046P US201361791409P US201361802174P US201361806375P US201361814263P US201361819803P US201361828130P US201361835931P US201361836123P US201361847537P US201261736527P US201361748427P US201361758468P	12.12.2012	12.12.2013
PCT/US2014/041803	Delivery, Engineering and Optimization of Systems, Methods and Compositions for Sequence Manipulation and Applications.	Broad, MIT and Harvard	Feng Zhang, Patrick Hsu, Fei Ran, Chie-Yu Lin	US201361915383P WO2013US74667 US201361871301P US201361862355P US201361847537P US201361836123P	10.06.2014	17.06.2013

PCT/US2013/0 74691	Engineering and Optimization of Improved Systems, Methods and Enzyme Compositions for Sequence Manipulation.	Broad, MIT and Harvard	Feng Zhang, Fei Ran, Ophir Shalem	US201361769046P US201361791409P US201361802174P US201361806375P US201361814263P US201361819803P US201361828130P US201361835931P US201361836127P US201261736527P US201361748427P US201361758468P	12.12.2013	12.12.2012
PCT/US2013/0 74736	Engineering and Optimization of Systems, Methods and Compositions for Sequence Manipulation with Functional Domains.	Broad, MIT and Harvard	Feng Zhang, Neville Sanjana, Le Cong, Fei Ran, Randall Platt	US201361769046P US201361758468P US201361791409P US201361802174P US201361806375P US201361814263P US201361819803P US201361828130P US201361835931P US201361835936P US201261736527P US201361748427P	12.12.2013	12.12.2012
PCT/US2013/0 74819	Engineering of Systems, Methods and Optimized Guide Compositions for Sequence Manipulation.	Broad, MIT and Harvard	Feng Zhang, Le Cong, Patrick Hsu, Fei Ran	US201361769046P US201361791409P US201361802174P US201361806375P US201361814263P US201361819803P US201361828130P US201361835931P US201361836127P US201261736527P US201361748427P US201361758468P	12.12.2013	12.12.2012
PCT/US2014/0 41800	Delivery, Engineering and Optimization of Tandem Guide Systems, Methods and Compositions for Sequence Manipulation.	Broad, MIT and Harvard	Feng Zhang, Fei Ran, Chie-Yu Lin	US201361862468P US201361871301P US201361915407P US201461979942P US201361836123P US201361847537P US201361862355P	10.06.2014	17.06.2013
PCT/US2014/0 41806	Functional Genomics Using CRISPR-Cas Systems, Compositions, Methods, Screens and	Broad and MIT	David Root, Feng Zhang, Neville Sanjana, Ophir Shalem, John Doench, Ella Hartenian	US201461995636P US201361960777P US201361836123P WO2013US74800	10.06.2014	17.06.2013

	Applications Thereof.					
PCT/US2014/62558	Functional Genomics Using CRISPR-Cas Systems, Compositions, Methods, Screens and Applications Thereof.	Broad, MIT and Whitehead	Tim Wang, David Sabatini, and Eric Lander	US201361961980P US201361963643P US201462069243P	28.10.2014	28.10.2013
PCT/US2014/064663	CRISPR-Related Methods and Compositions with Governing gRNAs.	Broad, Editas, Iowa and MIT	Feng Zhang, Beverley Davidson, Edgardo Rodriguez, Deborah Palestrant, Jordi Mata-Fink, Alexis Borisy	US201361901215P	07.11.2014	07.11.2013
PCT/US2014/069897	Compositions and Method of Use of CRISPR-CAS Systems in Nucleotide Repeat Disorders.	Broad, Iowa and MIT	Feng Zhang, Chie-Yu Lin, Beverley Davidson, Edgardo Rodriguez	US201462010879P US201462010888P US201361915150P	30.01.2019	12.12.2013
PCT/US2014/070068	CRISPR-CAS Systems and Methods for Altering Expression of Gene Products, Structural Information and Inducible Modular CAS Enzymes.	Broad and MIT	Feng Zhang, Bernd Zetsche	US201361915267P US201461939228P	12.12.2014	12.12.2013
PCT/US2014/070127	Delivery, Use and Therapeutic Applications of the CRISPR-Cas Systems and Compositions for Genomic Editing.	Broad and MIT	Feng Zhang, Le Cong, Randall Platt, Lukasz Swiech, David Cox, Matthias Heidenreich	US201361915153P US201361915176P US201361915192P US201361915215P US201361915107P US201361915145P US201361915148P	12.12.2014	12.12.2013

PCT/US2014/0 41808	Delivery, Engineering and Optimization of Systems, Methods and Compositions for Targeting and Modeling Diseases and Disorders of Post Mitotic Cells.	Broad and MIT	Feng Zhang, Lukasz Swiech, Matthias Heidenreich	WO2013US74667 US201461979573P US201361847537P US201361871301P US201361862355P US201361915203P US201361836123P	11.06.2014	17.06.2013
PCT/US2014/0 41809	Delivery, Use and therapeutic Applications of the CRISPR-Cas systems and Compositions for Targeting Disorders and Diseases Using Viral Components.	Broad, MIT and Harvard	Feng Zhang, Le Cong, Fei Ran, Lukasz Swiech, Matthias Heidenreich	US201461979879P US201361871301P US201361862355P WO2013US74667 US201361847537P US201361915225P US201361836123P	11.06.2014	17.06.2013
PCT/US2013/0 74800	Functional Genomics Using CRISPR- CAS Systems, Compositions, Methods, Knock Out Libraries and Applications Thereof.	Broad and MIT	Feng Zhang, Neville Sanjana, Ophir Shalem	US201261736527P US201361802174P	12.12.2013	12.12.2012
PCT/US2014/0 70152	Engineering Of Systems, Methods And Optimized Guide Compositions with New Architectures For Sequence Manipulation.	Broad, MIT and Harvard	Feng Zhang, Fei Ran	US201361915267P US201461939256P	12.12.2014	12.12.2013
PCT/US2014/0 70175	Systems, Methods and Compositions for Sequence Manipulation with Optimized Functional CRISPR-CAS Systems.	Broad, MIT, Harvard and Tokyo	Feng Zhang, Silvana Koneremann, Mark Brigham, Patrick Hsu, Fei Ran, Chie- Yu Lin, Osamu Nureki, Hiroshi Nishimasu, Ryuichiro Ishitani, Alexandro Trevino	US201361915267P US201461980012P US201462055484P US201462087537P US201461939256P US201361915251P US201461930214P US201461939242P	12.12.2014	12.12.2013
PCT/US2015/0 45504	Genome Editing Using CAS9.	Broad, MIT and Harvard	Feng Zhang, Fei Ran	US201462038358P US201562180699P	17.08.2015	17.08.2014

PCT/US2015/ 51830	Functional Screening with Optimized Functional CRISPR-Cas Systems.	Broad, MIT and Harvard	Feng Zhang, Silvana Konermann, Mark Brigham, Alexandro Trevino	US201462087546P US201562181687P US201562181690P US201462055460P US201462055487P US201462087475P	24.09.2015	25.09.2015
PCT/US2015/ 67151	RNA-Targeting System.	Broad, MIT and Harvard	Feng Zhang, Patrick Hsu, Jonathan	US201462096324P US201462098059P US201562181667P US201562181641P	21.12.2015	23.12.2014
PCT/US2015/0 65393	Dead Guides for CRISPR Transcription Factors.	Broad and MIT	Feng Zhang, Silvana Konermann, Omar Abudayyeh, James Dahlman	US201562237496P US201462091462P US201462096324P US201562180681P	11.12.2015	12.12.2014
PCT/US2016/0 38034	Engineering and Optimization of Systems, Methods, Enzymes and Guide Scaffolds of CAS9 Orthologs and Variants for Sequence Manipulation.	Broad, MIT, Harvard and Tokyo	Feng Zhang, Le Cong, Fei Ran, Osamu Nureki, Hiroshi Nishimasu, Yinqing Li, Winston Yan, Kaijie Zheng	US201562181659P US201562207318P	17.06.2016	19.08.2015

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PCT Family	Patent Title	Applicants	Inventors	Priority Applications	Filing Date	Earliest Priority Date
PCT/US 2013/3258 9	Methods and compositions for RNA-directed target DNA modification and for RNA-directed modulation of transcription.	University of California, University of Vienna, Charpentier Emmanuelle	Emmanuelle Charpentier, Jennifer A. Doudna, Martin Jinek, Krzysztof Chylinski, Cate Doudna, James Harrison, Wendell Lim, Lei Qi	US201261652086P US201261716256P US201361757640P US201361765576P	15.03.2013	25.05.2012