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U.S. DEPARTMENT OF COMMERCE

Patent and Trademark Office Docket No.: 7529/0F552

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To the Honorable Commissioner of Patents	101739744	riginal documents or copy thereof.

1. Name of conveying party(ies):

Yongwon CHOI and Howard Hughes Medical Institute

Additional name(s) of conveying party(ies) attached?

[] Yes [X] No

3. Nature of conveyance:

[X] Assignment

[]Merger

Security Agreement

Change of Name

Other

Execution Date: May 29, 2001

2. Name and address of receiving party(ies):

Name: The Rockefeller University

Internal Address:

Street Address: 1230 York Avenue

City: New York State: NY Zip:10021-6399

Additional name(s) & address(es) attached?

[] Yes [X] No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution fate of the application is:

A. Patent Application No.(s)

Serial No. 09/330,867 Filed: June 11, 1999

B. Patenteel wats deposited with the U.S. Postal Service & that it was addressed for delivery to the Assistant Commissioner for Patents, Washington, DC 20231 by "Express Mail Post Office to Addressee" service.

BPeck Signature

Additional numbers attached? [] Yes Name (Roint)

6. Total number of applications and patents involved:

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Darby & Darby P.C.

Internal Address: Samuel S. Woodley, Ph.D.

Street Address: 805 Third Avenue, 27th Floor

City: New York State: New York Zip: 10022-7513

7. Total fee (37 CFR 3.41):.....\$ 40

[X] Enclosed

Authorized to be charged to deposit account

8. Deposit account number:

04-0100

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Samuel S. Woodley, Ph.D. (43,287) Name of Person Signing

May 30, 2001 Date

Total number of pages including cover sheet, attachments, and document:

REEL: 011852 FRAME: 0224

<u>ASSIGNMENT</u>

WHEREAS I, Yongwon CHOI, a citizen of United States of America, residing at 1815 John F. Kennedy Boulevard, Apartment 2525, Philadelphia, Pennsylvania 19103, United States of America, have made, with Brian WONG and Daniel BESSER, certain invention entitled:

TRANCE ACTIVATED SIGNAL TRANSDUCTION PATHWAYS IN OSTEOCLASTS

described in the Application Serial No. 09/330,867 filed in the United States Patent and Trademark Office on June 11, 1999 for Letters Patent therefor (hereinafter called the "Invention");

WHEREAS HOWARD HUGHES MEDICAL INSTITUTE, a non-profit institution organized and existing under the laws of the State of Maryland and having a place of business at 4000 Jones Bridge Road, Chevy Chase, Maryland 20815-6789 (hereinafter called the "Institute"), is an Assignee of my right, title and interest to said invention by virtue of an Assignment made by me, Yongwon CHOI, in accordance with the Intellectual Property Agreement signed by me as an employee of the Institute and as a condition of my employment, which Assignment has been executed by me on April 17, 2001 and recorded in the United States Patent and Trademark Office on April 19, 2001;

WHEREAS, the Institute and I, Yongwon CHOI, (hereinafter collectively referred to as the "ASSIGNORS") desire collectively to assign, transfer and set over the entire right, title and interest in and to the Invention to the below named ASSIGNEE in accordance with agreements of the Institute with said ASSIGNEE;

WHEREAS, furthermore, the Institute has designated and authorized me, Yongwon CHOI, its agent for this purpose as set forth in the copy of the authorization letter attached hereinbelow: and

WHEREAS, **THE ROCKEFELLER UNIVERSITY**, a university organized and existing under the laws of the State of New York, having a business address at 1230 York Avenue, New York, New York 10021-6399, (hereinafter called the "ASSIGNEE") is desirous of securing the entire right, title and interest in and to the said Invention, application and Letter Patent when granted, and in and to any divisions, continuations, improvements, reissues or extensions that may be made or granted thereon;

PATENT REEL: 011852 FRAME: 0225 NOW, THEREFORE, BE IT KNOWN that for and in consideration of the sum of One Dollar (\$1.00) to me in hand paid by the said ASSIGNEE and other good and valuable consideration, the receipt of all of which is hereby acknowledged, we, the said ASSIGNORS, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said ASSIGNEE, it successors and assigns, the entire right, title and interest throughout the world in and to the said invention, application and Letters Patent, when granted, and in and to any divisions, continuations, improvements, reissues or extensions that may be made or granted on any of them;

TO HAVE AND TO HOLD the same to the full end of the term or terms for which said Letters Patent may be granted, as fully and completely as the same might be held by us had this sale and assignment not been made.

For the consideration aforesaid, we hereby covenant and agree to and with the said ASSIGNEE, its successors and assigns, that whenever its counsel or representative, or the counsel or representative of its successors or assigns, shall advise that an amendment to, or a division of, or any other proceeding or action in connection with said application or invention, including interference proceedings, is lawful and desirable, or that a reissue or continuation or extension of said Letters Patent is lawful and desirable, we will sign all papers and drawings, take all rightful oaths and affidavits, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue or continuation or extension of the same, and will do all acts necessary or required to secure to the said ASSIGNEE, its successors and assigns, the title to and full benefit of all rights hereby assigned, without charge to said Assignee or its successors or assigns, but at its or their expense;

AND the Commissioner of Patents and Trademarks is requested to issue the said Letters Patent, when granted, in accordance with this sale and assignment.

For the consideration aforesaid, we have sold, assigned, transferred and set over and by these presents do sell assign, transfer and set over unto the said ASSIGNEE, its successors and assigns, or the nominees of any of them, the entire right, title and interest in and to any and all Letters Patent for said invention which may be granted in countries foreign to the United States, and in and to the invention described in said applications; and we hereby authorize and empower said ASSIGNEE and its successors, assigns or nominees to apply for Letters Patent or other form of protection on said invention in its own name or in the name of its successors, assigns or nominees, in any or all countries where it may desire to file such application and where said application may be filed by another than the inventors; and we hereby covenant and agree to sign all papers and drawings, take all rightful oaths, execute all rightful affidavits, and do all acts necessary or required to be done for the procurement

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and maintenance of Letters Patent or other form of protection for said invention in countries foreign to the United States, and for further investing or confirming the right and title thereto in the ASSIGNEE, its successors, assigns or nominees, without charge to said ASSIGNEE, its successors, assigns or nominees, but at its or their expense.

I, Yongwon CHOI declare under penalty of perjury under the laws of the United States of America that I have signed this document as my own free act for myself and as agent for the Howard Hughes Medical Institute, and that all of the foregoing is true and correct.

DATED: 6/27/2001

Yongworf CHOI,

For Himself and as Agent for

The Howard Hughes Medical Institute

APPOINTMENT OF INVESTIGATOR AS AGENT

Appointment by the Howard Hughes Medical Institute (the "Institute") of Yongwon Choi, PhD, an investigator employed by the Institute, as its agent for the purpose of assigning certain rights to The Rockefeller University (the "University").

WHEREAS, the Institute and the University collaborate in the active conduct of medical research pursuant to an Agreement between them dated as of August 12, 1986 (the "Agreement");

WHEREAS, pursuant to the Agreement, the Institute has agreed to assign to the University the Institute's rights with respect to inventions, discoveries, improvements, and other intellectual property, whether patentable or copyrightable (each a "Subject Property"), conceived or reduced to practice in the course of the research program conducted under the Agreement by employees of the Institute;

WHEREAS, research conducted pursuant to the Agreement by Yongwon Choi, PhD while employed by the Institute at the University has resulted in the invention of a certain Subject Property entitled "TRANCE Activated Signal Transduction Pathways In Osteoclasts," which is the subject of a patent application filed in the U.S. Patent and Trademark Office entitled "TRANCE-Activated Signal Transduction Pathways In Osteoclasts" on June 11, 1999 with Serial Number 09/330,867 (the "Invention"), and the Invention is a Subject Property; and

WHEREAS, the Institute wishes Yongwon Choi, PhD to act as its agent for the purpose of assigning to the University the rights the Institute has in the Invention by reason of the research program conducted at the University,

NOW THEREFORE, the Institute hereby appoints Yongwon Choi, PhD as its agent for the purpose of assigning the rights the Institute has in the Invention by reason of the research program conducted at the University to the University in accordance with and subject to the conditions of the Agreement.

Executed 21 APR 2001

HOWARD HUGHES MEDICAL INSTITUTE

By:

Gerald M. Rubin, PhD

Vice President for Biomedical Research

ATTESTED:

Joan \$. Leonard, Esq.

Vice President and General Counsel

RECORDED: 05/30/2001

Rockefeller U: RU 436

HHMI: 1592

PATENT REEL: 011852 FRAME: 0228