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To the Director of the United States Patent and Trademark Office: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):
**J. Gregory Zeikus
Maris Laivenieks
Claire Vieille
Pil Kim**

Additional names(s) of conveying party(ies) Yes No

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

Name: **Board of Trustees of Michigan State University**

Internal Address: _____

Street Address: **Michigan State University
238 Administration Building**

City: **East Lansing** State: **MI** ZIP: **48824**

Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance:

Assignment Merger
 Security Agreement Change of Name
 Other

Execution Date: **Zeikus and Vieille 8/05/04
Pil Kim 8/11/04
Laivenieks 8/25/04**

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

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

A. Patent Application No.(s)
10/911,961

B. Patent No.(s)

Additional numbers attached? Yes No

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

Name: **Ian C. McLeod**

Internal Address: **McLeod & Moyne, P.C.**

09/07/2004 6TON11 00000019 10911961

01 FC:8021 40.00 DP

Street Address: **2190 Commons Parkway**

City: **Okemos** State: **MI** ZIP: **48864**

6. Total number of applications and patents involved: **1**

7. Total fee (37 CFR 3.41):.....\$ **40.00**

Enclosed - Any excess or insufficiency should be credited or debited to deposit account

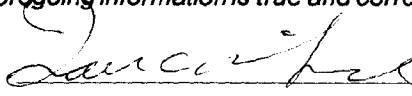
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To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Ian C. McLeod  **08/30/04**

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PATENT
REEL: 015757 FRAME: 0205

ASSIGNMENT

WHEREAS, we, J. GREGORY ZEIKUS, MARIS LAIVENIEKS, CLAIRE VIEILLE AND PIL KIM, residing at 2529 Dustin, Okemos, Michigan 48864; 705 Cherry Lane, Apt. 202, East Lansing, Michigan 48823; 2715 Fernwood Avenue, Lansing, Michigan 48912; and 521-39 Mangu-3 Dong, Chungrang-Ku, Seoul, South Korea, respectively have invented certain new and useful improvements in ACTINOBACILLUS SUCCINOGENES SHUTTLE VECTOR AND METHODS OF USE for which an application for United States Letters Patent was filed on August 5, 2004 and assigned Serial No. 10/911,961; and

WHEREAS, Board of Trustees, a constitutional Corporation of MICHIGAN STATE UNIVERSITY, (hereinafter referred to as Assignee) of East Lansing, State of Michigan is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefor in the United States and in any and all foreign countries.

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to us in hand paid, the receipt whereof is hereby acknowledged, and other valuable considerations, we the said J. GREGORY ZEIKUS, MARIS LAIVENIEKS, CLAIRE VIEILLE AND PIL KIM, have sold, assigned and transferred, and by these presents do sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States and its territorial possessions and in all foreign countries and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all divisions, reissues, continuations and extensions thereof.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 25 day of August, 2004

Signed in the Presence of:

Coral S. Vandergrift

M. Laivenieks
Maris Laivenieks

STATE OF MICHIGAN :
COUNTY OF INGHAM : ss.

On this 25 day of August, 2004, personally appeared before me the above named Maris Laivenieks to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.

SEAL

Mary Dunn
Notary Public, Clinton County, Michigan
My Commission Expires ~~April 1, 2005~~ July 8, 2005
Signature Mary Dunn

IN TESTIMONY WHEREOF, I have hereunto set my hand this 5 day of August, 2004

Signed in the Presence of:

Janice Le

Claire Vieille
Claire Vieille

STATE OF MICHIGAN :
COUNTY OF INGHAM : ss.

On this 5th day of August, 2004, personally appeared before me the above named Claire Vieille to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be her free act and deed in and for the purposes set forth in said instrument.

SEAL

Tammi L. Taylor
Notary Public
My Commission Expires: TAMMI L. TAYLOR
Notary Public, Ingham County, MI
My Commission Expires Oct. 27, 2008


IN TESTIMONY WHEREOF, I have hereunto set my hand this 11th day of August, 2004

Signed in the Presence of:

W. H. Lee
So-Young, cho
[Signature]
Pil Kim

STATE OF :
COUNTY OF : ss.

On this 11th day of August, 2004, personally appeared before me the above named Pil Kim to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.

SEAL:  man affair office
of Biotechnology

W. H. Lee
Notary Public
My Commission Expires: Feb. 28. 2005