### PATENT ASSIGNMENT

## Electronic Version v1.1

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|                                      | itent Group   |                                  |  |  |
| me: Cooley LLP<br>777 6th Street, NW |   |                                  |  |  |
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| Redwood City                         |   |                                  |  |  |
| 351 Galveston Drive                  |   |                                  |  |  |
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### ASSIGNMENT

Case No.: 08-1128-PCT4-US Serial No.: 12/521,949 Inventors: Pamela Palmer, Thomas Schreck, Stelios Tzannis, Larry Hamel, Andrew I. Poutiatine, Charles Rampersaud and Bruce Edwards. Date of Execution of Application: Filing Date: July 1, 2009

In consideration and other good and valuable considerations in hand paid, the receipt and sufficiency whereof are hereby acknowledged, the undersigned hereby assign to:

#### AceIRx Pharmaceuticals, Inc.

its successors and assigns, the entire right, title and interest in the invention or improvements of the undersigned disclosed in an application for Letters Patent of the United States, entitled:

# "Small Volume Oral Transmucosal Dosage Forms Containing Sufentanil for Treatment of Pain"

and identified as:

### Case No. 08-1128-PCT4-US

in the offices of MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP and in said application and any and all other applications, both United States and foreign (including but not limited to all countries on the list below\*), which the undersigned may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States and foreign countries (including but not limited to all countries on the list below\*), which may be obtained on any of said applications, and in any reissue or extension of such patents, and further assigns to said assignee the priority right provided by the International Convention.

The undersigned hereby authorize and request the United States Commissioner of Patents and Trademarks to issue said Letters Patent to said assignee.

The undersigned hereby authorize and request the attorneys of record in said application to insert in this assignment the filing date and serial number of said application when officially known, and the date of execution of the application.

The undersigned warrant themselves to be the owners of the entire right, title and interest in said invention or improvements and to have the right to make this assignment, and further warrant that there are no outstanding prior assignments, licenses, or other encumbrances on the interest herein assigned.

For said considerations the undersigned hereby agree, upon the request and at the expense of said assignee, its successors and assigns, to execute any and all divisional, continuation and substitute applications for said invention or improvements, and any necessary oath, affidavit or declaration relating thereto, and any application for the reissue or extension of any Letters Patent that may be granted upon said application and any and all applications and

PATENT REEL: 029435 FRAME: 0949

other documents for Letters Patent in foreign countries (including but not limited to all countries on the list below\*) on said invention or improvements, that said assignee, its successors or assigns may deem necessary or expedient, and for the said considerations the undersigned authorize said assignee to apply for patents for said invention or improvements in its own name in such countries where such procedure is proper and further agree, upon the request of said assignee, its successors and assigns, to cooperate to the best of the ability of the undersigned with said assignee, its successors and assigns, in any proceedings or transactions involving such applications or patents, including the preparation and execution of preliminary statements, giving and producing evidence, and performing any and all other acts necessary to obtain, maintain and enforce said Letters Patent, both United States and foreign, and vest all rights therein hereby conveyed in the assignee, its successors and assigns, whereby said Letters Patent will be held and enjoyed by the said assignee, its successors and assigns, to the full end of the term for which said Letters Patent will be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

\*Countries include, but are not limited to: all member countries of the Patent Cooperation Treaty (PCT) including Albania, Algeria, Antigua and Barbuda, Armenia, Australia, Austria, Azerbaijan, Barbados, Belarus, Belgium, Belize, Benin, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Central African Republic, Chad, China, Colombia, Congo, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic People's Republic of Korea, Denmark, Dominica, Ecuador, Estonia, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guinea, Guinea-Bissau, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Kazakhstan, Kenya, Krygyzstan, Latvia, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Mali, Mauritania, Mexico, Monaco, Mongolia, Monaco, Mongolia, Morocco, Netherlands, New Zealand, Niger, Norway, Poland, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saint Lucia, Senegal, Sierra Leone, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Swaziland, Sweden, Switzerland, Tajikstan, The former Yugoslav Republic of Macedonia, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United Republic of Tanzania, United States of America, Uzbekistan, Vietnam, Yugoslavia, Zambia, Zimbabwe,

WITNESS my hand and seal this  $\underline{GY}^{A}$  day of  $\underline{OCTODW}^{A}$ 2009

Pamela Palmer

State of County of

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On <u>Octobur</u> 9,2007 before me, <u>TINO KUMMS</u> (here insert name and title of the officer), personally appeared <u>Hone a. Pa/ney</u> personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official/seal Signature Seal)

San Martes



PATENT REEL: 029435 FRAME: 0950

WITNESS my hand and seal this <u>9</u> day of <u>OCTDBW</u>, <u>2009</u>.

PATENT REEL: 029435 FRAME: 0951

Thomas Schreck

State of County of Sou Mateo 2009/before me, \_\_\_///Q\_ on October 9 (here insert name and title of the officer), personally appeared <u>Thomas</u> <u>Schnuk</u> personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. WITNESS my hand and official seal. (Seal) Signature 7 OFFICIAL SEAL TINA MARIE KUHNS NOTARY PUBLIC - CALIFORNIA COMMISSION #1768950 County of San Mateo My Commission expires Sept. 18, 2011 WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_\_, 2009. **Stelios Tzannis** State of County of before me, On (here insert name and title of the officer), personally appeared \_\_\_\_\_ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. WITNESS my hand and official seal. (Seal) Signature

| WITNESS my hand and seal this $\frac{37}{2}$ day of | October, 2009. |
|---|----------------|
| .`  | Let Namel      |
|   | Larry Hamel    |

State of County of <u>Sau Matter</u> On <u>October 92009</u> before me, <u>Mac Rums</u> (here insert name and title of the officer), personally appeared <u>Lawry Haur</u> personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal. Signature (Seal)



WITNESS my hand and seal this I day of November , 2009. Andrew L. Poutiatine Say Pray Cisco State of County of On 1101. 11. 2009 before me, 1100 (here insert name and title of the officer), personally appeared Annual personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal (Seal) Signature



PATENT REEL: 029435 FRAME: 0952

| WITNESS my hand and seal this <u>9</u> day of <u>OCTO Ker</u> , <u>2009</u> .   |
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| State of County of <u>Scur Matter</u><br>On <u>Detabler</u> , <u>Jun</u> before me, <u>Jun</u> <u>Kunns</u><br>(here insert name and title of the officer), personally appeared <u>Changes Raugersours</u><br>personally known to me (or proved to me on the basis of satisfactory evidence) to be the<br>person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me<br>that he/she/they executed the same in his/her/their authorized capacity(ies), and that by<br>his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the<br>person(s) acted, executed the instrument. |
| WITNESS my hand and official seal.<br>Signature (Seal)  |
| WITNESS my hand and seal this $\frac{gk}{day}$ day of $\underline{OCDBer}$ , 2009.<br>$\underline{SmEdadd}$<br>Bruce Edwards  |
| State of County of <u>San Mated</u><br>On <u>October 9, 2007</u> before me, <u>Tima Kennes</u><br>(here insert name and title of the officer), personally appeared <u>Burle Allocards</u><br>personally known to me (or proved to me on the basis of satisfactory evidence) to be the<br>person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me<br>that he/she/they executed the same in his/her/their authorized capacity(ies), and that by<br>his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the<br>person(s) acted, executed the instrument.                  |
| WITNESS my hand and official/seal.<br>Signature (Seal) Signature (Seal) OFFICIAL SEAL<br>TINA MARIE KUHNS<br>NOTARY PUBLIC - CALIFORNIA<br>COMMISSION #1768950<br>COUNTY of San Mateo<br>Notary Public - CALIFORNIA<br>COMMISSION #1768950<br>Ny commission expires Sept. 18, 2011  |

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### ASSIGNMENT

Case No.: 08-1128-PCT4-US Serial No.: 12/521,949 Inventors: Pamela Palmer, Thomas Schreck, Stelios Tzannis, Larry Hamel, Andrew I. Poutiatine, Charles Rampersaud and Bruce Edwards. Date of Execution

of Application:

Filing Date: July 1, 2009

In consideration and other good and valuable considerations in hand paid, the receipt and sufficiency whereof are hereby acknowledged, the undersigned hereby assign to:

### AcelRx Pharmaceuticals, Inc.

its successors and assigns, the entire right, title and interest in the invention or improvements of the undersigned disclosed in an application for Letters Patent of the United States, entitled:

# "Small Volume Oral Transmucosal Dosage Forms Containing Sufentanil for Treatment of Pain"

and identified as:

### Case No. 08-1128-PCT4-US

in the offices of MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP and in said application and any and all other applications, both United States and foreign (including but not limited to all countries on the list below\*), which the undersigned may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States and foreign countries (including but not limited to all countries on the list below\*), which may be obtained on any of said applications, and in any reissue or extension of such patents, and further assigns to said assignee the priority right provided by the International Convention.

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PATENT REEL: 029435 FRAME: 0954

other documents for Letters Patent in foreign countries (including but not limited to all countries on the list below\*) on said invention or improvements, that said assignee, its successors or assigns may deem necessary or expedient, and for the said considerations the undersigned authorize said assignee to apply for patents for said invention or improvements in its own name in such countries where such procedure is proper and further agree, upon the request of said assignee, its successors and assigns, to cooperate to the best of the ability of the undersigned with said assignee, its successors and assigns, in any proceedings or transactions involving such applications or patents, including the preparation and execution of preliminary statements, giving and producing evidence, and performing any and all other acts necessary to obtain, maintain and enforce said Letters Patent, both United States and foreign, and vest all rights therein hereby conveyed in the assignee, its successors and assigns, whereby said Letters Patent will be held and enjoyed by the said assignee, its successors and assigns, to the full end of the term for which said Letters Patent will be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

\*Countries include, but are not limited to: all member countries of the Patent Cooperation Treaty (PCT) including Albania, Algeria, Antigua and Barbuda, Armenia, Australia, Austria, Azerbaijan, Barbados, Belarus, Belgium, Belize, Benin, Bosnia and Herzegovina, Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Central African Republic, Chad, China, Colombia, Congo, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Democratic People's Republic of Korea, Denmark, Dominica, Ecuador, Estonia, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Grenada, Guinea, Guinea-Bissau, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Kazakhstan, Kenya, Krygyzstan, Latvia, Lesotho, Liberia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malawi, Mali, Mauritania, Mexico, Monaco, Mongolia, Monaco, Mongolia, Morocco, Netherlands, New Zealand, Niger, Norway, Poland, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saint Lucia, Senegal, Sierra Leone, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Swaziland, Sweden, Switzerland, Tajikstan, The former Yugoslav Republic of Macedonia, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, United Republic of Tanzania, United States of America, Uzbekistan, Vietnam, Yugoslavia, Zambia, Zimbabwe.

WITNESS my hand and seal this <u>9</u><sup>Th</sup> day of <u>OCTODAY</u> 2009

San Mates

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State of County of

Pamela Palmer

On <u>Octobur</u> 92007 before me, <u>TINA KUMMS</u> (here insert name and title of the officer), personally appeared <u>Hune a. Palmur</u> personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official/seal, Signature \_ (\$eal)



PATENT REEL: 029435 FRAME: 0955

WITNESS my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_\_, 2009.

10 TH

Thomas Schreck

State of County of

On \_\_\_\_\_\_ before me, \_\_\_

(here insert name and title of the officer), personally appeared \_\_\_\_

personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature \_\_\_\_\_(Seal)

| WITNESS my hand and seal this <u>16</u> d  | ay of <u>OCTOBER, 2009</u> .   |
|--|--|
|  | Stelios Tzannis  |
| State of County of Flanke-   | _ //   |
| On <u>164</u> outdates 2005 before me,<br>(here insert name and title of the officer), | personally appeared the stellos TEANNIS  |
| person(s) whose name(s) is/are subscri   | me on the basis of satisfactory evidence) to be the<br>bed to the within instrument and acknowledged to me         |
|  | in his/her/their authorized capacity(ies), and that by<br>nt the person(s), or the entity upon behalf of which the |

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WITNESS my hand and official seal.



WITNESS my hand and seal this <u>9</u> day of <u>October</u> 2009. Larry Hamel Sau Mate

On OCTOBEN 42009 before me, Ince. (here insert name and title of the officer), personally appeared down Tano personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal. Signature (Seal)

State of County of



WITNESS my hand and seal this I day of November , 2009.

Andrew L. Poutiatine

Sau Prancisco State of County of

On <u>INV. 11. 2009</u> before me, <u>110a</u> Kiehne (here insert name and title of the officer), personally appeared \_\_\_\_\_\_ personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal (Seal) Signature



PATENT REEL: 029435 FRAME: 0957

| WITNESS my hand and seal this <u>4</u> day of <u>OCTO Ker</u> , <u>2009</u> .   |
|---|
| State of County of <u>Scumpateo</u><br>On <u>DADBER 9, 2009</u> before me, <u>TIMA Kumps</u><br>(here insert name and title of the officer), personally appeared <u>Chomes RounderScum</u><br>personally known to me (or proved to me on the basis of satisfactory evidence) to be the<br>person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me<br>that he/she/they executed the same in his/her/their authorized capacity(ies), and that by<br>his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the<br>person(s) acted, executed the instrument. |
| WITNESS my hand and official seal.<br>Signature (Seal)<br>Signature (Seal)<br>Normality Public - CALFORNIA<br>COMMISSION #1768950<br>County of San Mateo<br>My Commission expires Sept. 18, 2011  |
| WITNESS my hand and seal this <u>GK</u> day of <u>OCD Bly</u> , <u>2009</u> .<br>State of County of San Mated   |
| On <u>OCTOBEN 9, 2007</u> before me, <u>TINOCKUMNS</u><br>(here insert name and title of the officer), personally appeared <u>BUCCEBUCCUMDS</u><br>personally known to me (or proved to me on the basis of satisfactory evidence) to be the<br>person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me<br>that he/she/they executed the same in his/her/their authorized capacity(ies), and that by<br>his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the<br>person(s) acted, executed the instrument.  |
| WITNESS my hand and official/seal.<br>Signature (Seal) OFFICIAL SEAL<br>TINA MARIE KUHNS<br>NOTARY PUBLIC - CALIFORNIA<br>COMMISSION #1768950<br>County of San Mateo<br>Wy commission expires Sept. 18, 2011  |

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**RECORDED: 12/10/2012** 

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