Development of Collagenase Clostridium Histolyticum (Xiaflex) Injection for Fibroproliferative Diseases

SUNY AIR Abstracts
Application Form

Question Group

Campus*
Please indicate your campus. (Some campuses are included in this drop down menu. If you do not see your campus, please select "Other campus" and type the name of your campus below. Abstracts are welcome from researchers and administrators at all SUNY campuses.)

Stony Brook University

Other campus
If you selected "Other Campus" above, type the name here.

Project Name*
Name of project, success story, or asset. (Max: 250 characters)

Development of Collagenase Clostridium Histolyticum (Xiaflex) Injection for Fibroproliferative Diseases

Presentation Preference*
Please indicate whether you are interested in presenting verbally, having a poster, or both.

Verbal Presentation

Summary Statement*
Please summarize your abstract in 600 characters with spaces. This may be published in print and web materials.

Fibroproliferative diseases are collagen based and involve excess deposition of collagen in many areas of the human body. Examples are the collagen "cords" of Dupuytren contracture (a fixed flexion contracture of the fingers), frozen shoulder (adhesive capsulitis) which is a painful condition of the shoulder joint collagen capsule and edematous fibrosclerotic panniculopathy (commonly known as cellulite) in which fine collagen "bands" form on the thigh and buttock areas, mostly in women. Collagenase Clostridium histolyticum injection therapy has been developed to treat these disorders.

Abstract*
Your response is limited to 3,000 characters with spaces. This may be published in print and web materials.

Collagenase Clostridium histolyticum (CCH) injection therapy for Dupuytren contracture was developed at Stony Brook University Medical Center "from bench to bedside". This disorder prevents patients from full extension of fingers, severely limits hand function and, prior to the injection therapy, surgery was the only option. Laboratory bench work led to an FDA investigational new drug number (IND) which allowed for FDA regulated Phase 1, 2 and 3 clinical trials (1,2,3). CCH was licensed to industry after Phase 1 and 2 and one Phase 3 clinical trial at Stony Brook University Medical Center. In 2010, CCH injection was FDA approved as "Xiaflex" in adult patients with Dupuytren contracture. Since then, many regulatory agencies around the
world have approved this therapy, including the EU countries and Australia. It is estimated there are approximately 13-25 million Dupuytren patients worldwide.

Frozen shoulder (adhesive capsulitis) is a painful condition of the shoulder capsule which severely limits function of one or both arms and can last 2-3 years. Prolonged and painful physical therapy and/or shoulder arthroscopy are some of the present treatment options. CCH injection is currently in FDA regulated Phase 2 clinical trial study in the USA and Australia. Developed at Stony Brook Orthopaedics and licensed to industry early indications suggest that this injection therapy has merit in treating frozen shoulder and reducing recovery time from years to 2-3 months (4).

Edematous fibrosclerotic panniculopathy (cellulite), at first thought, may not seem to be a collagen based disorder but it is. Fine collagen "bands", known as septae form, mostly on the thighs and buttocks of women. Adipose or "fat" tissue protrudes through the bands giving the unsightly "mattress-like" appearance. Phase 2 FDA regulated clinical trials are now underway to investigate the safety and efficacy of CCH injection for cellulite elimination. This technology, developed at Stony Brook, has been licensed to industry.


Curriculum Vitae or Resume*

CV Badalamente.doc

List industry contacts (target or existing)

Existing- Endo Pharmaceuticals, 1400 Atwater Drive, Malvern, PA, 19355

Dr. Michael McLane (McLane.Michael@endo.com)
Dr. Neil Shusterman (Shusterman.Neil@endo.com)

High-resolution photos

If you have high-resolution photos of you conducting research and/or your work, please upload them. This may be used in web and print materials

Additional photos
File Attachment Summary

Applicant File Uploads

- CV Badalamente.doc
CURRICULUM VITAE

Marie A. Badalamente, Ph.D.

I. PERSONAL BACKGROUND

Office Address: Dept. Orthopaedics, T-18, Room 052, Health Science Center
SUNY@Stony Brook, NY 11794

Home Address: 29 Ashland Street
Mt. Sinai, New York 11766

Home Telephone: 631 331 3179
Office Telephone: 631 444 1489
E Mail: Marie.Badalamente@stonybrookmedicine.edu

II. EDUCATIONAL BACKGROUND

<table>
<thead>
<tr>
<th>DEGREE</th>
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| Ph.D.  | 1977 | Fordham University  
         |       | Bronx, New York |
|        |      |             |
|        |      |             |
| M.S.   | 1973 | C.W. Post College  
         |       | Long Island University  
         |       | Greenvale, New York |
|        |      |             |
|        |      |             |
| B.A.   | 1971 | C.W. Post College  
         |       | Long Island University  
         |       | Greenvale, New York |

III. EMPLOYMENT

<table>
<thead>
<tr>
<th>YEAR</th>
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</tr>
</thead>
</table>
| 1979 to present | Department of Orthopaedics  
         | School of Medicine  
         | SUNY at Stony Brook  
         | Stony Brook, New York 11794-8181  
         | (516) 444-1489 |
| 1993 to Present | Professor |
| 1986 to 1993 | Associate Professor |
| 1979 to 1986 | Assistant Professor |
1978 to 1979  Department of Anatomy & Cell Biology
               SUNY Downstate Medical Center
               Brooklyn, New York
               Assistant Professor

1975 to 1978  Assistant Professor/Department of Biology
               C.W. Post Center Long Island University

1974 to 1975  City University of New York
               Bronx Center  Department of Biology/Instructor

IV. PUBLICATIONS

1) Badalamente, M.A., Ultrastructure of Bertramia aerospora Fritsch, a Microsporidian 

2) Badalamente, M.A., Ultrastructure Observations of the Respiratory Siphon of the Fourth 
   Instar Culex pipiens Larve Subjected to Chemical Monolayers, Annals of the Entomological 

3) Handelsman, J.E. and Badalamente, M.A., Neuromuscular Studies in Club Foot. J. 

4) Handelsman, J.E. and Badalamente, M.A., Clubfoot: A Neuromuscular Disease. 

5) Badalamente, M.A. and Hurst, L.C., The Pathogenesis of Dupuytren's Contracture: 

6) Hurst, L.C., Badalamente, M.A., Ellstein, J. and Stracher, A., Inhibition of Neural and 

7) Hurst, L.C., Badalamente, M.A. and Blum, D., CO2 Laser Transection of Rat Peripheral 


   1984.


64) Kaplan, FTD, Badalamente, MA, Hurst, LC, Merrell, GA, Pahk, R. Delayed Manipulation After Collagenase Clostridium Histolyticum Injection for Dupuytren Contracture. Hand, in press.


V. ABSTRACTS AND PRESENTATIONS


7. Badalamente, M.A. and Handelsman, J.E., Annual Meeting of the American Academy for Cerebral Palsy and Developmental Medicine, Boston, October, 1980. Paper was judged to be one of the six best presented.


DR. MARIE A. BADALAMENTE
ABSTRACTS AND PRESENTATIONS, Cont'd


54. Badalamente, M.A. (Invited Speaker), Ciliary Neurotrophic Factor in Peripheral Nerve Repair. SUNY-Stony Brook, Department of Medicine, Division of Endocrinology/Metabolism Conference, January, 1992


58. Badalamente, M.A. (Invited Speaker), Cumulative Trauma Disorders of the Hand and Wrist. SUNY-Stony Brook, Department of Medicine, Division of Allergy/Rheumatology Conference, January, 1993.


ABSTRACTS AND PRESENTATIONS, Cont'd


74. Keller, K, Badalamente, M.A. The Inhibitory Effects of IL-4 and IL-10 on Cartilage Breakdown Induced by Synovium from Patients with Arthritis. 65th Annual Meeting American Academy of Orthopaedic Surgeons, New Orleans, March 1998.
DR. MARIE A. BADALAMENTE
ABSTRACTS AND PRESENTATIONS, Cont'd


96. Badalamente, M.A., Wang, E. Enzymatic Capsulotomy for Adhesive Capsulitis of the


113. Badalamente, MA, Hurst, LC. Dupuytren’s Disease Symposium (Co- Director) 1- Presentation- Factors in Dupuytren’s Disease 2- Presentation- Enzymatic Fasciotomy Development April 16-17, 2010, SUNY Stony Brook


116. Badalamente, MA, Project Medical Education. A two day program for NY legislators and their aides to learn how medical doctors and scientists are educated at SUNY Stony Brook. August 16, 2010.

DR. MARIE A. BADALAMENTE
ABSTRACTS AND PRESENTATIONS, Cont'd


129. Badalamente, MA, Hurst LC, Benhaim P, Cohen B. Efficacy and safety of collagenase clostridium histolyticum (CCH) in the treatment of proximal interphalangeal joints in Dupuytren’s


133. Gould, ES, Huang, M, Badalamente, MA, Baker, KS, Wang, ED. Assessment of Shoulder MR Findings in Patients Diagnosed with Stage 2 Unilateral Adhesive Capsulitis Treated with Collagenase Clostridium Histolyticum Injection vs. Exercise-Only Controls: A Retrospective Review. The 9th Annual Women in Medicine Day, School of Medicine, SUNY@Stony Brook University.


VI. PROFESSIONAL AFFILIATIONS

MICROSCOPY SOCIETY OF AMERICA
NEW YORK SOCIETY FOR ELECTRON MICROSCOPY
SIGMA XI, THE SCIENTIFIC RESEARCH SOCIETY OF NORTH AMERICA
NEW YORK ACADEMY OF SCIENCES
ORTHOPAEDIC RESEARCH SOCIETY
BRITISH ORTHOPAEDIC RESEARCH SOCIETY
AMERICAN SOCIETY FOR SURGERY OF THE HAND (FIRST Ph.D. MEMBER ELECTED)

VII. EXTERNAL COMMITTEE MEMBERSHIP - EDITORIAL DUTIES

DUPUYTREN'S DISEASE COMMITTEE (INVITED MEMBER)- INTERNATIONAL FEDERATION OF SOCIETIES FOR SURGERY OF THE HAND, 2001


AMERICAN SOCIETY FOR SURGERY OF THE HAND- RESEARCH AND CLINICAL TRIALS ADVISORY COMMITTEE- (2005-2010)

AMERICAN SOCIETY FOR SURGERY OF THE HAND- CLINICAL TRIALS OUTCOME COMMITTEE -(2008-present)


AD HOC REVIEWER- NATURE REVIEWS RHEUMATOLOGY (2010)

AD HOC REVIEWER- CURRENT MEDICAL RESEARCH AND OPINION (2012)


AD HOC GRANT REVIEWER- ARTHRITIS RESEARCH FOUNDATION UK (2013)

VIII. COMMITTEE MEMBERSHIP - SUNY STONY BROOK


RESIDENCY CURRICULUM COMMITTEE-- Dept. of Orthopaedics (1984-present) (Executive Secretary - 1989-present)

RESIDENCY SELECTION COMMITTEE-------Dept. of Orthopaedics (1980-1990; 1994- present)

FACULTY COMMITTEE-----------------------------Dept. of Orthopaedics (1979-present)
UNDERGRADUATE CURRICULUM COMMITTEE (Executive Secretary 1989)
UNIVERSITY SENATE (1985-1988)
UNIVERSITY LABORATORY ANIMAL USER'S COMMITTEE (1988-1989)
FACULTY SENATE (School of Medicine) (1985-1991)
EXECUTIVE COMMITTEE-FACULTY SENATE (School of Medicine) (1989-1991)
ADVISORY COMMITTEE FOR THE UNIV. MICROSCOPY IMAGE CENTER (1992)
DEAN'S RESEARCH ADVISORY COMMITTEE (School of Medicine) (1994-1997)
ADVISORY COMMITTEE-UNIVERSITY HOSPITAL GENERAL CLINICAL RESEARCH CENTER (1995-2011)
ADVISORY COMMITTEE-CONTINUING MEDICAL EDUCATION (1999-present)
WOMEN IN MEDICINE COMMITTEE (2005-present)
APPOINTMENT, PROMOTIONS AND TENURE COMMITTEE (2007-2012)
FACULTY DEVELOPMENT: MENTORING PROGRAM (PEER MENTORING FOR CLINICAIN EDUCATORS) (2012-2014).

IX. HONORS AND AWARDS

- 2012 Person of the Year in Science, Times Beacon Record and Rocky Point Lions/Rotary Clubs


X. GRANTS


Auxilium Pharmaceuticals, Inc. A Phase 2a, Randomized, Double Blind, Placebo Controlled Dose Ranging Study of Repeat Doses of AA4500 for the Treatment of Edematous Fibrosclerotic Panniculopathy” $51,992 (AUX CC 831) A.B. Dagum and M.A. Badalamente, co-PI’s. 10/13-10/14.

Auxilium Pharmaceuticals, Inc. A Phase 3b Open-Label Historically Controlled Study to Assess the Safety and Efficacy of Two Concurrent Injections of AA-4500 in Adult Subjects with Multiple Dupuytren’s Contractures with Palpable Cords (AUX-CC-867)”. ~ $150,000 on a per subject basis. LC Hurst and M.A. Badalamente, Co-PI’s. 11/12-11/14.

Auxilium Pharmaceuticals, Inc. Pilot Study to Assess the Safety and Efficacy of Two Concurrent Injections of AA-4500 in Adult Subjects with Multiple Dupuytren’s Contractures. $25,258. 10/11-10/12 LC Hurst and MA Badalamente, Co-PI’s.

Auxilium Pharmaceuticals, Inc. A phase 2a Open Label Dose Ranging Study of the Safety and Effectiveness of AA4500 for the Treatment of Adhesive Capsulitis of the Shoulder. (AUX CC 870) 12/21/11-12/14/12, $136,279.


Auxilium Pharmaceuticals,Inc. Long term Studies of Dupuytren’s Subjects Treated with Collagenase. 9/09-3/13, $136,944.

General Clinical Research Center, SUNY Stony Brook. Nonsurgical Treatment of Trapeziometacarpal Joint Arthritis. 4/10-4/12. $14,000

General Clinical Research Center, SUNY Stony Brook. Multicenter Clinical Study (SUNY SB, UCLA, University of Groningen, The Netherlands) of the Genetic Origin of Dupuytren’s. 9/10-8/13. $3,500.

Auxilium Pharmaceuticals, Inc. Injection of Sterile Saline onto the Capsule of Normal Shoulders: An Ultrasound Study. 10/09-3/10, $22,920

Auxilium Pharmaceuticals, Inc. Nonoperative Treatment of Dupuytren’s Disease. CORD 1-Multicenter Phase 3 Clinical Trials, 9/07-11/08, $197,000.
Auxilium Pharmaceuticals, Inc. Nonoperative Treatment of Dupuytren’s Disease. Followup Data for Previous Phase 2 and Early Phase 3 Clinical Trials. $20,000. 6/06- 6/07

Ceptor Corp. Delay of Muscle Degeneration in a Murine Dystrophy Model. $86,512. 5/02-4/05.

National Institutes of Health, STRR, Inhibition of Muscle Degeneration in mdx Mice by Calpain Inhibition. A. Stracher, Ph.D. and M.A. Badalamente, Ph.D. $150,000. 10/01- 10/03.


Advance Biofactures Corporation. Collagenase in the Treatment of Dupuytren's Disease. L.C. Hurst, M.D. & M.A. Badalamente, Ph.D., Co-P.I.'s, $40,000, 1/97-12/00.


School of Medicine-SUNY Stony Brook. The Pathobiology of Idiopathic Carpal Tunnel Syndrome. M.A. Badalamente, Ph.D, Sampson, S.P.& L.C. Hurst, M.D., Co-P.I.'s, $20,000, 7/95-10/96.


M.A. Badalamente, Ph.D., Co-P.I., $120,329.


Easter Seals Research Foundation, July 1, 1981-July 1, 1984. Effects of a Protease Inhibitor on
Epineural Neurorrhaphy. $45,000. L.C. Hurst, M.D. & M.A. Badalamente, Ph.D., Co-P.I.'s.


Research Associate with Dr. E. Aiello, Fordham University. National Institutes of Health Grant, Division of Heart and Lung, 1977-1978.

While a Ph.D. candidate, dissertation research was supported by a National Institutes of Health Grant to Dr. E. Aiello, mentor, 1973-1977.

MEETINGS ATTENDED


Federation of American Societies for Experimental Biology, Anaheim, Ca., 1976

Preparation of Cultured Cells for Electron Microscopy, W. Alton Jones Cell Science Center, Lake Placid, N.Y., 1976

XI Congress of the International Academy of Pathology Diagnostic Electron Microscopy, Washington, D.C., 1976

Second Annual Symposium on Motor Disorders, Nassau County Medical Center, April, 1978

Neuromuscular Diseases in Children, S.U.N.Y. @ Stony Brook, March, 1979

Federation of American Societies for Experimental Biology Meeting, Anaheim, Ca., April, 1980

Medical Society of the State of New York, Spring Continuing Medical Education Assembly Program, April, 1980

Fourth Annual Symposium on Motor Disorders, Nassau County Medical Center, April, 1980

Neuromuscular Disease Update: A Postgraduate Course. Columbia University, College of Physicians and Surgeons, New York, September, 1980

American Academy for Cerebral Palsy and Developmental Medicine, Annual Meeting, Boston, October, 1980


Orthopaedic Research and American Academy of Orthopaedics Annual Meetings, Anaheim, Ca., March, 1983

New York Academy of Sciences, Biological Colloquium, New York, Nov., 1983

American Academy of Orthopaedics and Orthopaedic Research Society Annual Meeting, Atlanta, Georgia, Feb., 1984

N.Y. Academy of Sciences, 2nd biological Colloquium, N.Y., November, 1984

American Academy of Orthopaedics and Orthopaedic Research Society Annual Meeting, Atlanta, Georgia, Feb., 1984

N.Y. Academy of Sciences, 2nd Biological Colloquium, N.Y., Nov., 1984


XIII World Congress on Degeneration in a Murine Dystrophy Model. M.A. Badalamente, Ph.D. $86,512. 5/02-4/05.

National Institutes of Health, STRR, Inhibition of Muscle Degeneration in mdx Mice by Calpain Inhibition, N.Y., Nov., 1985


Orthopaedic Research Society, American Academy of Orthopaedic Surgeons, Atlanta, Ga., Feb.,
1988

Orthopaedic Research Society, Las Vegas, Nev., Feb., 1989
Symposium on Pain in Osteoarthritis, Cancun, Mexico, Feb., 1989
Orthopaedic Research Society, New Orleans, La., Feb., 1990
Third Vienna Muscle Symposium, Vienna, Austria, June, 1990
American Society for Surgery of the Hand, Toronto, Canada, September, 1990
Orthopaedic Research Society, Anaheim, Ca., March, 1991
Orthopaedic Research Society, San Francisco, Ca., Feb., 1993
Orthopaedic Research Society, New Orleans, La., Feb., 1994
Orthopaedic Research Society, Orlando, Fl., Feb., 1995
Orthopaedic Research Society, Atlanta, Feb, 1996
Orthopaedic Research Society, San Francisco, Feb, 1997
American Society for Surgery of the Hand, Denver, September, 1997

International Federation of Societies for Surgery of the Hand, Vancouver, Canada, May, 1998

American Association of Hand Surgery, Kona, Hawaii, January, 1999

American Society for Surgery of the Hand, Boston, September, 1999

General Clinical Research Center Bioinformatics Conference: A Technology for Clinical Research, San Antonio, November, 1999

Orthopaedic Research Society, Orlando, March, 2000

5th International Muscle Symposium, Vienna, Austria, May, 2000

American Society for Surgery of the Hand, Seattle, October, 2000

Orthopaedic Research Society, San Francisco, February, 2001

American Society for Surgery of the Hand, Baltimore, 2001

Orthopaedic Research Society, Dallas, 2002

FDA- Therapies for Rare Diseases: From Bench to Marketplace, Washington DC, 2002

American Society for Surgery of the Hand, Phoenix, 2002


Orthopaedic Research Society, San Francisco, 2004

American Academy of Orthopaedic Surgeons, Washington DC, 2005

American Society for Surgery of the Hand, San Antonio, 2005

American Academy of Orthopaedic Surgeons, Chicago, 2006


American Academy of Orthopaedic Surgeons, San Diego, 2007
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<tr>
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<td>International Federation of Societies for Surgery of the Hand</td>
<td>Sydney, Australia</td>
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<td>Combined Meeting of the Orthopaedic Research Society</td>
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<td>Orthopaedic Research Society and American Academy of Orthopaedic Surgeons</td>
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<td>International Symposium in Dupuytren’s Disease</td>
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<td>Spanish Society for Surgery of the Hand</td>
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<td>Societe Francaise de Chirurgie de la Main</td>
<td>XLVIII Congress, Paris</td>
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<td>Leuven University, Leuven, Belgium</td>
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<td>Combined Meeting of the American/Canadian Orthopaedic Associations</td>
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