



**DELMONT LABORATORIES, INC.
BIOLOGICAL SPECIALTIES**

P. O. BOX AA, SWARTHMORE, PENNSYLVANIA 19081, U.S.A.

May 26, 1978

Miss Jennie C. Peterson
Hearing Clerk (HFC-20)
Food and Drug Administration
Room 4-65
5600 Fishers Lane
Rockville, Maryland 20857

Re: Docket No. 77N-0091 -- Bacterial
Vaccines and Antigens with No
U.S. Standard of Potency

Dear Miss Peterson:

On January 8, 1978, Delmont Laboratories, Inc., submitted comments in the above-referenced proceeding with respect to the classification of its Staphage Lysate (SPL) products under the Food and Drug Administration biologics review. On February 7, 1978, Delmont submitted data, information, and analyses in response to a notice of opportunity for hearing on intent to revoke its biologics license (No. 299) for SPL. Delmont now submits the attached documents as supplements to its earlier submissions. The documents include:

1. Case reports on 60 patients treated with SPL over periods ranging from 2 to 20 years, prepared by Arthur G. Baker, M.D., of Ridley Park, Pennsylvania, together with a cover letter and attachments by Dr. Baker explaining the method by which the information was collected. Delmont's comments submitted on January 8 made reference to the preparation of these reports and included a protocol of the study as exhibit 4. The reports show that no allergic reactions or adverse effects were observed in any of the patients who received SPL over extended periods of time.

2. Protocols and reports on clinical studies of SPL to determine the correlation of preoperative immune responses with postoperative infection. Both studies are under the supervision of John S. Silva, M.D. One was instituted at the Veterans Administration Hospital in Biloxi, Mississippi, on December 15, 1977, and a protocol for it was

RECEIVED <i>May 30 1978</i>
BY <i>Shiela Shelby</i>
JENNIE C. PETERSON HEARING CLERK, FDA

Miss Jennie C. Peterson
May 26, 1978
Page Two

submitted by Delmont on February 7, 1978, in accordance with 21 C.F.R. § 314.200(c)(2). The second study is to be performed at the Keesler Air Force Base Medical Center in Mississippi, and is expected to begin in June 1978. Reference was made to this study in the February 7 submission. Dr. Silva's letter of May 15, 1978 (attached to the protocol of the Biloxi study) states that the study is now 5 months old, that 175 patients have been tested with SPL and 30 patients treated. No allergic reactions or other adverse effects have been observed.

This information further supports Delmont's position, set out in its January 8 comments, that SPL is safe and that an opportunity should be provided for the completion of clinical studies to provide additional information demonstrating the product's effectiveness. For these reasons, SPL should be classified in Category IIIA and be permitted to remain on the market for a reasonable time while studies are conducted.

Respectfully submitted,

Charles E. Lincoln APK
Charles E. Lincoln
President

SW

Attachments

cc: John B. Robbins, M.D. (HFB-500) (w/encl.)
Robert P. Brady, Esq. (GCF-1) (w/o encl.)

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 1 Male Present Age 37
Female x Occupation Hswf & Sec'y

Diagnosis:

1. Initial condition for which SPL was administered.
Bronchial Asthma. Recurrent bronchitis
Intracutaneous test with SPL positive for delayed hypersensitivity
2. Concurrent diseases for which SPL was not administered. None

3. Patient treated with SPL

From: 11-15-69 to 1-31-78 (present)
From: to
From: to

Treatment maintained regularly

4. Routes of Administration.

Subcut. x Intranasal x Topical Other

5. Dosage by each route: Sub or intra cutaneous 1/10 cc q 1 to 4 weeks
Intranasal aerosol 3/10 cc at above intervals

6. Approximate number of treatments: 105

7. Patient's response: Much improved. Only two severe flare-ups of bronchitis & asthma in eight years.

8. Present condition: Last year developed fall ragweed pollenosis. Doing very well.

9. No adverse reactions to treatment

(Signed) J. D. Sabers, M.D.

Date 3-14-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 2 Male Present Age 59
Female _____ Occupation _____

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent bronchitis - Bronchial Asthma - Acute URI's many.
Intracutaneous test with SPL positive for delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
Pul. tuberculosis - inactive. Pulmonary fibrosis.

3. Patient treated with SPL
From: 1-16-70 to 2-13-78 present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.
Subcut. Intranasal Topical _____ Other _____

5. Dosage by each route: Subcutaneous or Intracutaneous 1/10 ml at 1 to 3 week intervals. Intranasal aerosol 3/10 cc at the same intervals.

6. Approximate number of treatments: 90

7. Patient's response: Good. Fewer asthmatic episodes. Misses much less time from work. Feels much better

8. Present condition: Good

9. Has had no adverse reactions to treatment.

Has continued under observation of State TB Clinic - X-rays O.K.

(Signed) J. A. Baker, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 3 Male Present Age 41
Female x Occupation Hswf.

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent nasal sinusitis with severe pain - frequent attacks for 16 yrs.
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

Nasal allergy to inhalants

3. Patient treated with SPL

From: 7-28-69 to 2-12-78 continuous treatment
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other

5. Dosage by each route: Subcutaneous Or Intracutaneous 1/10 cc q 1-4 weeks.
Intranasal aerosol 3/10 cc at above intervals.

6. Approximate number of treatments: 100

7. Patient's response: Satisfactory. Sinus attacks much less frequent,
much less severe and none for the last 24 months.

8. Present condition: Very satisfactory.

9. No adverse reactions or symptoms from treatment.

(Signed)

Date 3-10-78

J. D. Baker, M.D.

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 4

Male Present Age 21

Female x

Occupation R.N. Childrens
Hospital, Phila.

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent Pharyngitis for 5 months & cervical adenopathy.
Intracutaneous test with SPL positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
Allergy to dust & mold spores. Mononucleosis tests negative.

3. Patient treated with SPL

From: 5-13-71 to 6-12-74 Stopped. Thought she was improved.
From: 11-5-75 to 2-8-78 (present)
From: to

4. Routes of Administration.

Intracutaneous x

~~Subcut.~~ Intranasal x Topical Other

5. Dosage by each route: Intracutaneous 1/10 cc q 1-4 weeks.
Intranasal aerosol 3/10 cc same intervals

6. Approximate number of treatments: 55

7. Patient's response: Controlled while under treatment. Flared back
after stopping treatment.

8. Present condition: Still occasional exacerbations, milder & of shorter
duration. Is doing floor duty in Childrens Hospital, Phila. and
has no end of exposure to infection.

9. No adverse reactions or symptoms to treatment
Has routine checks at work - all O.K.

(Signed) J. E. B. M. M.D.

Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 5 Male Present Age 8½ yrs.
Female Occupation school child

Diagnosis:

1. Initial condition for which SPL was administered.

Frequent colds - bronchitis - asthma
Intracutaneous test with SPL - positive for delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.

3. Patient treated with SPL

From: 12-21-72 to 1-31-77 (present)
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Intracutaneous.
Subcut. _____ Intranasal Topical _____ Other _____

5. Dosage by each route:

Intracutaneous 1/10 cc Intranasal 3/10 cc at 1 to 4 week intervals.

6. Approximate number of treatments: 90. Weekly at first - now q 4 weeks.

7. Patient's response: less frequent colds, no asthma.

8. Present condition: Excellent

9 No adverse reaction to treatment

(Signed) J. B. Baker, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 6 Male Present Age 10
Female x Occupation school

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent acute bronchitis each winter, prolonged coughing.
Intracutaneous test to SPL - marked delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 9-5-72 to 1-18-78 (present)
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other

5. Dosage by each route: ^{cc}
Subcutaneous SPL 1/10/q 1 - 4 weeks
Intranasally 3/10 cc q 1 - 4 weeks. Started 1/week, now q 4 wks.
6. Approximate number of treatments: 84

7. Patient's response: Good. Two mild attacks of bronchitis in 4 years.

8. Present condition: Good

9. No reactions adverse in type to SPL treatment

(Signed) J. D. [Signature]
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 7

Male x

Female _____

Age 14

Occupation school

Diagnosis:

1. Initial condition for which SPL was administered.
Bronchial asthma - recurrent and becoming more severe for 3 yrs.
Intracutaneous test with SPL - marked delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
None. Under care of Pediatrician

3. Patient treated with SPL

From: 10-28-68 to 9-15-77

From: _____ to _____

From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

Started weekly & extended gradually to 4 week intervals.

6. Approximate number of treatments: 92

7. Patient's response: Very good - no attacks in 3 yrs. Stopped
coming. Will return P.R.N.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed)

Date

J. D. Smith, M.D.
3-14-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 8 Male Present Age 9
Female _____ Occupation School

Diagnosis:

1. Initial condition for which SPL was administered.
Bronchial asthma & recurrent pneumonia
Intracutaneous test with SPL - delayed positive hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
None - referred by Pediatrician.

3. Patient treated with SPL

From: 10-26-72 to 1-20-77
From: _____ to _____
From: _____ to _____

Stopped because of family problems. Boy has remained well with no attacks to date 2-18-78.

4. Routes of Administration.

Subcut. Intranasal Topical _____ Other _____
.1 cc SPL .3 cc SPL

5. Dosage by each route:
As listed above starting weekly then increased interval gradually to 4 weeks.

6. Approximate number of treatments: 75

7. Patient's response: Good

8. Present condition: Checked by phone 2-18-78. Good.

9. No adverse reactions to treatment.

(Signed) [Signature]
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 9 Male Present Age 20
Female _____ Occupation School

Diagnosis:

1. Initial condition for which SPL was administered.
Bronchitis, Bronchial Asthma
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
None.

3. Patient treated with SPL

From: 5-26-72 to 8-31-76
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. Intranasal Topical _____ Other _____
.1 cc SPL .3 cc SPL

5. Dosage by each route:
Given weekly at first & changed gradually to 4 week intervals

6. Approximate number of treatments: 58

7. Patient's response: Good. Stopped because he was much better and refused to bother coming in.

8. Present condition: Good. Checked by phone 2-18-78

9. No adverse reactions to treatment.

(Signed)
Date

J. B. Baker, M.D.
3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 10 Male Present Age 67
Female x Occupation housewife

Diagnosis:

1. Initial condition for which SPL was administered.
Bronchial Asthma, frequent colds - seasonal spasms.
Intracutaneous test with SPL - delayed positive sensitivity.

2. Concurrent diseases for which SPL was not administered.
Hypertension - moderate

3. Patient treated with SPL

From: 2-24-72 to 2-16-78 (present)
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
.1 cc SPL .3 - .4 cc SPL

5. Dosage by each route:

Dose given weekly at first gradually lengthened to 4 weeks.

6. Approximate number of treatments: 88

7. Patient's response: Doing well - has had many fewer attacks and much milder. Easily controlled with medication.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) J. D. Baker, M.D.
Date 3-16-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 11 Male x Present Age 52
Female _____ Occupation Research chemist

Diagnosis: Bronchial asthma aggravated by frequent URI episodes.

1. Initial condition for which SPL was administered.
Repeated URI & Bronchial Asthma
Intracutaneous test of SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 12-31-71 to 1-20-78 present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
.1 cc SPL .3 - .5 cc SPL

5. Dosage by each route:

Started weekly, now q 3 - 4 weeks

6. Approximate number of treatments: 95

7. Patient's response: No longer severe attacks, no URI's. Occasional mild flare-up due to allergen exposure such as dust, chemical fumes, etc.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) J. V. Baker, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 12 Male Present Age 11 yrs
Female _____ Occupation School

Diagnosis: Frequent URI & Bronchitis & Bronchial Asthma

1. Initial condition for which SPL was administered.
As above.
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 11-6-72 to 1-23-76
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. Intranasal Topical _____ Other _____
.1 cc SPL .3 cc SPL

5. Dosage by each route:

Given weekly and interval gradually increased to q 3 - 4 weeks.

6. Approximate number of treatments: 72

7. Patient's response: No asthma after 8 months of treated.

Stopped & watched after 1-23-76

Rechecked on 2-19-78

8. Present condition: Doing fine - no trouble.

(Signed) [Signature]

Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 13

Male x

Age 54

Female _____

Occupation cerl

Diagnosis:

1. Initial condition for which SPL was administered.
Chronic cough - bronchitis by X-ray - P N drip - Nasopharyngeal culture predominantly Staph aureus.
Intracutaneous test - positive delayed hypersensitivity.
2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 2-27-71 to 1-6-77
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x 1/10 cc Intranasal x 3/10 cc Topical _____ Other _____

5. Dosage by each route: Started weekly, then gradually increased to 4 weeks.
6. Approximate number of treatments: 94
7. Patient's response: Cough better, less frequent & less severe, but still recurs. Felt he had reached a plateau & stopped treatment to return at his discretion.
8. Present condition: As above.
9. No reactions to treatment

(Signed)

Date

J. G. Baker, Jr.
3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 14 Male x Present Age 14 yrs.
Female _____ Occupation _____

Diagnosis: Bronchial Asthma. Frequent URI's & bronchitis.

1. Initial condition for which SPL was administered.

As above.

Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

None - under care of Pediatrician.

3. Patient treated with SPL

From: 5-30-73 to present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x .1 cc Intranasal x .3 cc Topical _____ Other _____

5. Dosage by each route:

dose given weekly then gradually interval lengthened to q 4 weeks.

6. Approximate number of treatments: 67

7. Patient's response: Improved, no attacks for the last 18 months.

8. Present condition: Good

9. Has had no adverse reaction to treatment.

(Signed) A. B. Baker, M.D.
Date 3-18-75

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 15 Male Present Age 21
Female Occupation College

Diagnosis: Bronchial asthma, recurrent, cough, wheezing.

1. Initial condition for which SPL was administered.

Year round - recurrent Bronchial Asthma
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

Fall pollenosis

3. Patient treated with SPL

From: 12-12-72 to 1-24-78 present
From: to
From: to

4. Routes of Administration.

Subcut. .1 cc Intranasal .3 cc Topical Other

5. Dosage by each route: As above weekly at first & gradually lengthen interval to 3 - 4 weeks.

6. Approximate number of treatments: 114

7. Patient's response: Very good.

8. Present condition: No asthma for 2½ years.

9. No adverse reactions & sequellae to treatment.

(Signed) J. D. Baker, M.D.

Date 3-12-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 16

Male x
Female _____

Age 20
Occupation school

Diagnosis:

Chronic recurrent Bronchial Asthma & cough

1. Initial condition for which SPL was administered.
Recurrent intractable cough and asthma.
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.

Seasonal pollenosis

3. Patient treated with SPL

From: 12-24-73 to 1-12-78 present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

6. Approximate number of treatments: 80

7. Patient's response: no asthma after 14 months.

8. Present condition: Good - refuses to try stopping treatment.

9. No adverse reactions to treatment.

(Signed) J. V. Roberts, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 17 Male x present Age 14
Female _____ Occupation school

Diagnosis: Recurrent Bronchitis, Seasonal pollenosis

1. Initial condition for which SPL was administered.
Recurrent bronchitis, frequent & severe in winter

2. Concurrent diseases for which SPL was not administered.

Severe pollenosis

3. Patient treated with SPL

From: 10-29-72 to 2-2-78 present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

Given weekly for 14 weeks then interval increased to 3-4 weeks/

6. Approximate number of treatments: 108

7. Patient's response: No trouble with bronchitis after 8 months.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) J. D. Baker, M.D.

Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 18 Male x Age 7 yrs.
Female _____ Occupation school

Diagnosis: Severe serrous otitis media. Frequent severe URI's

1. Initial condition for which SPL was administered.
Frequent URI's flaring up serrous otitis media
Treatment started at 15 months. Subcutaneous test with SPL - positive delayed hypersensitivity.
2. Concurrent diseases for which SPL was not administered.

3. Patient treated with SPL

From: 12-15-72 to 1-28-78
From: _____ to _____
From: _____ to _____

4. Routes of Administration.
Intracutaneous or

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:
Given weekly for 16 weeks then interval gradually increased to 2 - 3 weeks.
6. Approximate number of treatments: 96
7. Patient's response: Gradual improvement of serrous otitis media, sharp decrease in severity & frequency of URI.
8. Present condition: Good - no serrous otitis for about 2 years.

(Signed) J. D. B. [Signature]
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 19

Male x

Age 11 yrs.

Female _____

Occupation school

Diagnosis: Recurrent bronchitis - early Asthma - winter time 3 yrs.

1. Initial condition for which SPL was administered.
Recurrent bronchitis - SPL treatment started at age 5.

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 3-4-72 to 8-11-77
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

weekly for 14 weeks then gradual lengthen interval to 4 weeks.

6. Approximate number of treatments: 87

7. Patient's response: Bronchitis & asthma gone after first 10 months of treatment. Treatment stopped after 8-11-77. Watch & return p.r.n.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) J. D. B. [Signature]

Date 3-11-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 20 Male _____ Age 42
Female x Occupation Hswf.

Diagnosis: Recurrent Sinusitis and bronchitis

1. Initial condition for which SPL was administered.
Recurring attacks of Sinusitis & Bronchitis winter time - many years - getting worse. Nasopharyngeal culture - predominant Staph aureus
Intracutaneous test with SPL positive delayed hypersensitivity.
2. Concurrent diseases for which SPL was not administered.

3. Patient treated with SPL

From: 4-20-72 to 1-25-78 present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.
Intracutaneous

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:
Weekly doses for 17 weeks then gradual increasing interval to 4 weeks.
6. Approximate number of treatments: 90
7. Patient's response: Rapid improvement during the first 18 months.
8. Present condition: No severe attacks the last 4 years.
9. No adverse reactions to treatment.

(Signed) [Signature]
Date 8.10.78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 21 Male Present Age 54
Female x Occupation Hswf.

Diagnosis. Perennial allergic rhinitis. Frequent Acute Sinusitis.
Severe headaches year around.

1. Initial condition for which SPL was administered.
Acute sinusitis and heachache.
2. Concurrent diseases for which SPL was not administered.
Allergic rhinitis
3. Patient treated with SPL

From: 7-27-72 to 2-18-78 present
From: to
From: to

4. Routes of Administration.
Intracutaneously X
~~SPL~~. SPL .1 cc Intranasal x .3 cc Topical Other

5. Dosage by each route:
Weekly treatment for 12 weeks then a gradual lengthening of interval
to 3 to 4 weeks.

6. Approximate number of treatments: 112

7. Patient's response: Steady decrease in frequency & severity of sinus
attacks & headaches.

8. Present condition:
No sinus attacks in the last 3 years.

9. No adverse reaction to treatment.

(Signed) *J. B. ...*
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 22 Male Present Age 16 yrs.
Female _____ Occupation school

Diagnosis: Recurrent Acute bronchitis - 3 - 5 attacks each winter for 4 years.

1. Initial condition for which SPL was administered.

Acute bronchitis

2. Concurrent diseases for which SPL was not administered. None

Intracutaneous test with SPL - positive delayed hypersensitivity

3. Patient treated with SPL

Culture - nasopharyngeal - S. aureus coag+

From: 6-28-68 to 6-16-76
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. Intranasal Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

Given weekly for 10 weeks then interval gradually lengthened to 4 weeks.

6. Approximate number of treatments: 110

7. Patient's response: excellent - stopped treatment on 6-16-76 because he had no trouble for 3½ years.

8. Present condition: Checked 2-20-78 -- fine.

9. No adverse reactions of any kind to treatment.

(Signed)

Date

A. D. B. B. B. B.
3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 23 Male Present Age 70
Female x Occupation Hswf.

Diagnosis: Bronchial asthma, frequent severe URI's for 8 yrs before starting
SPL treatment

1. Initial condition for which SPL was administered.

Bronchial asthma, frequent URI's - Nasopharyngeal culture- Staph aureus
Intracutaneous test with SPL positive delayed? (predominant coag+
hypersensitivity.)

2. Concurrent diseases for which SPL was not administered.

Hypertension

3. Patient treated with SPL

From: 1-6-69 to 2-13-78
From: to
From: to

4. Routes of Administration.

Intracutaneous: .1 cc SPL

Subcut. x .1 cc Intranasalx .3 cc Topical Other

5. Dosage by each route:

Dose weekly for 2 months, then q 2-3 weeks.

6. Approximate number of treatments: 108

7. Patient's response: Marked relief of asthma and decrease in
frequency of URI episodes.

8. Present condition: Much improved, occasional flare up easily controlled.

9. No adverse reactions to treatment.

(Signed)

Date

A. G. Zuber
3-11-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 25 Male x Age 56 at start of treatment
Female _____ Occupation _____

Diagnosis: Recurrent nasal sinusitis-pan. Rheumatoid arthritis - severe

1. Initial condition for which SPL was administered.
Pansinusitis recurrent for 11 years.
Intracutaneous test with SPL - positive delayed hypersensitivity
Nasopharyngeal culture - Staph aureus coagulase positive.

2. Concurrent diseases for which SPL was not administered.
Rheumatoid Arthritis - severe.

3. Patient treated with SPL

From: 5-21-69 to 10-9-75
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Intracutaneous &
Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc .3 - .5 cc

5. Dosage by each route: Started weekly and later lengthened to 3-4 weeks.

6. Approximate number of treatments: 91

7. Patient's response: Marked improvement in sinus attacks & symptoms.

No recurrent flare ups after 5 mo. of treatment. Of interest that there was marked improvement in his symptoms of rheumatoid arthritis-less pain, more mobility of joints and less swelling.

8. Present condition: Much improved on all counts. Died of accident 1975.

9. No untoward reaction to treatment.

(Signed)
Date

J. B. Baker, M.D.
3-11-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 26 Male present Age 11 years
Female x Occupation school

Diagnosis: Frequent URIs. Attacks of Bronchial Asthma. Fall pollenosis

1. Initial condition for which SPL was administered.
As above.
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 11-22-71 to 1-25-78
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 cc

5. Dosage by each route:

Above dose started weekly - interval gradually lengthened to
3-4 weeks.

6. Approximate number of treatments: 112

7. Patient's response: Marked decrease in URI episodes and no asthmatic
episodes after 12 months.

8. Present condition: Good - no trouble

9. No untoward reactions to treatment.

(Signed) J. B. Baker, D.O.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 27 Male present Age 14
Female x Occupation

Diagnosis: Frequent severe URI's - Bronchial Asthma - Recurrent bronchitis

1. Initial condition for which SPL was administered.
Bronchitis & Acute URI's. Bronchial Asthma
Intracutaneous SPL - delayed hypersensitivity reaction
2. Concurrent diseases for which SPL was not administered.
None
3. Patient treated with SPL

From: 2-20-73 to 1-3-78
From: to
From: to

4. Routes of Administration.
Intracutaneous &
Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 cc

5. Dosage by each route:

6. Approximate number of treatments: 83

7. Patient's response: Control of frequent URI & bronchitis attacks,
has been fine since about the 6 - 7 month of treatment

8. Present condition: Good health

9. No untoward reactions to treatment.

(Signed) *[Signature]*
Date 3-16-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 28 Male x present Age 56
Female _____ Occupation laborer

Diagnosis:

Recurrent Atopic & Contact dermatoses - arms & legs

1. Initial condition for which SPL was administered.

Contact & Atopic dermatitis with recurrent Staph aureus infection.

Intracutaneous test SPL - positive delayed hypersensitivity.

Culture of pustules - Staph aureus coag positive. Nasopharyngeal culture S. aur. coag. +.

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 9-17-74 to 1-24-78
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Intracutaneous

~~SPL~~ SPL .1 cc Intranasal x Topical x Other _____
SPL .5 cc SPL .5 cc

5. Dosage by each route:

Started q 4 days, then weekly and gradually extended to 3 - 4 weeks.

6. Approximate number of treatments: 52

7. Patient's response: Staph aureus infection of the rash areas subsided in the first four weeks, recurred briefly twice, and none in the last 2 years

8. Present condition: Much improved

9. No adverse reactions to treatment

(Signed)

Date

J. E. B. [Signature]
3-10-75

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 29

Male _____
Female x

Age 58 - start of treatment
Occupation housewife

Diagnosis: Aphthous herpetiforme ulcers of mouth & throat 8 months

1. Initial condition for which SPL was administered.
Herpetiforme ulcers of mouth & throat
Intracutaneous test with SPL - positive delayed hypersensitivity
Could not chew food or wear her dentures because of pain for last 6 months.

2. Concurrent diseases for which SPL was not administered.
None

3. Patient treated with SPL

From: 8-23-71 to 5-6-75
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

Given weekly for 16 weeks then interval gradually lengthened to
3 - 4 weeks

6. Approximate number of treatments: 71

7. Patient's response: improvement in frequency & severity of ulcers
during the first six months, thereafter only rare, single
short term ulcers.

8. Present condition: Not known. Stopped treatment and was good last
reported in 1976.

9. No adverse reaction to treatment.

(Signed)

Date

3-10-75

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 30

Male _____
Female x

Age 16
Occupation school

Diagnosis: Frequent URI - Bronchitis - Asthma

1. Initial condition for which SPL was administered.
URI's, bronchitis, asthma
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
Seasonal pollenosis

3. Patient treated with SPL

From: 9-19-72 to 1-11-78 continuing
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:
Given weekly for 14 weeks then interval lengthened to 3 - 4 weeks.

6. Approximate number of treatments: 127

7. Patient's response: Very good control of URI, bronchitis & asthma

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) [Signature]
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 31

Male _____
Female x

Age 58
Occupation housewife

Diagnosis: Severe chronic bronchial Asthma - Recurrent acute bronchitis

1. Initial condition for which SPL was administered.
Acute bronchitis & bronchial asthma

2. Concurrent diseases for which SPL was not administered.
Seasonal pollenosis

3. Patient treated with SPL

From: 11-16-73 to 2-2-78 continuing
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 - .5 cc

5. Dosage by each route:

6. Approximate number of treatments: 85

Dose given weekly at first for 14 weeks then interval lengthened

7. Patient's response: 3 - 4 weeks maintenance dose

Marked improvement within 10 weeks. Since 3 months very little trouble with cough or asthma

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed)
Date

J. D. Baker, M.D.
3-16-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 32

Male _____
Female x

Age 67
Occupation housewife

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent URI, sinusitis, & serrous otitis media - 8 yrs.
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
None

3. Patient treated with SPL

From: 4-14-70 to 2-16-78 present
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
S^L .1 cc SPL .3 cc

5. Dosage by each route: weekly for 18 weeks then q 2 - 4 weeks

6. Approximate number of treatments: 80

7. Patient's response: Very good after 3 months of treatment, is 90%
symptom free.

8. Present condition: Good

9. No untoward reactions to treatment.

(Signed)
Date

J. B. Baker, M.D.
3-16-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 33

Male

present Age 48

Female x

Occupation housewife

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent acute sinusitis 9 - 10 years
Nasopharyngeal culture - Staph aureus coagulase +
Intracutaneous test with SPL - positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
Allergic perennial rhinitis

3. Patient treated with SPL

From: 6-20-72 to 12-15-77 present

From: to

From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3-.5 cc

5. Dosage by each route:

6. Approximate number of treatments: 85

7. Patient's response: Very satisfactory - acute attacks cut 90% after
the first 2 - 3 months of treatment - remained good.

8. Present condition: Good - no complaints

9. No adverse reactions to treatment.

(Signed)

Date 3-11-78

[Handwritten Signature]
3-11-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 34 Male present Age 32
Female x Occupation sec'y & hswf

Diagnosis:

1. Initial condition for which SPL was administered.
Acute sinusitis & bronchitis recurrent 6 - 8 times yearly
Nasopharyngeal cultures Staph aureus coag + predominant
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 11-2-71 to 1-6-78 continuing
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 - .5 cc

5. Dosage by each route:
Weekly for 14 weeks then interval lengthened gradually to 3 - 4 weeks

6. Approximate number of treatments: 86

7. Patient's response: Control of acute episodes after 4 months of treatment. Since that time very occasional mild flare up easily relieved promptly.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) J. D. Baker, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 35

Male _____
Female x

Age 21 (present)
Occupation housewife

Diagnosis: Chronic sinus infections & nasal polyps - two operations in 2 years prior to start of treatment.

1. Initial condition for which SPL was administered.
Chronic sinus infections & nasal polyps
Nasopharyngeal culture - Staph aureus predominant.
Intracutaneous test with SPL - positive delayed hypersensitivity
2. Concurrent diseases for which SPL was not administered.
None

3. Patient treated with SPL

From: 8-24-71 to 1-24-78 continuing
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Intracutaneous &
Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 - .5 cc

5. Dosage by each route:

Started at weekly intervals for 12 weeks then q 2 - 4 weeks.

6. Approximate number of treatments: 85

7. Patient's response: No sinus attacks after 8 weeks of treatment.
No polyps recurrence

8. Present condition: No symptoms - no polyps

9. No adverse reactions to treatment.

(Signed)
Date

J. G. Babie, M.D.
3-14-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 36 Male present Age 13
Female x Occupation school

Diagnosis:

1. Initial condition for which SPL was administered.
Acute bronchitis, bronchial asthma, Recurrent episodes of bronchopneumonia
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
None

3. Patient treated with SPL

From: 6-17-74 to 2-16-78 continuing
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL . 1 cc SPL .3 cc

5. Dosage by each route:

Treated weekly for 15 weeks then interval gradually lengthened
to 2 - 3 weeks.

6. Approximate number of treatments: 68

7. Patient's response: After 2½ months - no asthma, no pneumonia and
one episode of mild bronchitis, easily treated.

8. Present condition: Good, no complaints.

9. No adverse reaction to treatment.

(Signed) J. D. Baker, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 37 Male Female _____ at start of treatment - 56 present Age 62 Occupation Machinist

Diagnosis: Bronchial asthma - year round severe, chronic & constant for 16 yrs.
Chronic bronchitis & acute flareups On prednisone 4 years.

1. Initial condition for which SPL was administered.
Bronchitis & Asthma
Intracutaneous test with SPL positive delayed hypersensitivity.

2. Concurrent diseases for which SPL was not administered.
Steroid dependence

3. Patient treated with SPL

From: 9-27-71 to 2-20-78 continuing
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. Intranasal Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:

6. Approximate number of treatments: 134

7. Patient's response: Gradual improvement. Off steroids after 7 months.
Many intervals completely free of symptoms. Still flares up with occasional URI's, but they are easier to control. Hospitalization not necessary the last 4 years.

8. Present condition: Improved

9. No adverse reactions to treatment.

(Signed)

Date 3-11-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 38 Male x present Age 15
Female _____ Occupation school

Diagnosis: Recurrent Bronchitis & Asthma
Seasonal pollinosis

1. Initial condition for which SPL was administered.
Recurrent Bronchitis & Asthma
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
Seasonal pollinosis

3. Patient treated with SPL

From: 1-15-69 to 2-21-78 continuing
From: _____ to _____
From: _____ to _____

4. Routes of Administration.

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 cc

5. Dosage by each route:
Given weekly for 18 doses then q 2 - 3 weeks as indicated

6. Approximate number of treatments: 131

7. Patient's response: Cough and asthma relived completely after 4 months of treatment - no recurrences except twice with acute URI's & responded quickly to treatment.

8. Present condition: Good

9. No adverse reactions to treatment.

(Signed) A. D. [Signature]
Date 8-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 39 Male present Age 62
Female x Occupation housewife

Diagnosis:

1. Initial condition for which SPL was administered.
Recurrent URI & Bronchitis
Bronchial asthma
2. Concurrent diseases for which SPL was not administered.
3. Patient treated with SPL
From: 3-22-71 to 2-21-78 continuing
From: to
From: to
4. Routes of Administration.
Intracutaneous &
Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3-.5 cc
5. Dosage by each route:
given weekly at first for 12 doses then q 2 - 4 weeks as indicated
6. Approximate number of treatments: 102
7. Patient's response: Attacks of bronchitis & asthma much less frequent
and much less severe. No attacks of status asthmaticus since start
of treatment.
8. Present condition: Improved.
9. No adverse reactions to treatment.

(Signed) *J. D. Baker, M.D.*
Date 3-16-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

at start of treatment age 10

Patient No. 40

Male present Age 19
Female x Occupation

Diagnosis: Bronchial Asthma - Recurrent Acute bronchitis - Seasonal pollenosis

1. Initial condition for which SPL was administered.
Bronchitis & asthma - 3 yrs duration & frequent
Intracutaneous SPL injection - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
Seasonal pollenosis

3. Patient treated with SPL

From: 11-19-68 to 2-16-78 continuing
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 cc

5. Dosage by each route:
given weekly for 18 weeks then q 2 - 4 weeks as indicated

6. Approximate number of treatments: 140

7. Patient's response: No bronchitis or asthma since 1972 and steadily
improving before that.

8. Present condition: Good - no complaints

9. No adverse reactions to treatment.

(Signed) J. D. Baker, M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 41 Male present Age 48
Female x Occupation housewife

Diagnosis: Bronchial Asthma. Frequent Acute URI & Bronchitis attacks

1. Initial condition for which SPL was administered.
Acute URI & Bronchitis
Bronchial Asthma
Intracutaneous test with SPL - positive delayed hypersensitivity.
2. Concurrent diseases for which SPL was not administered.
Seasonal Pollenosis
3. Patient treated with SPL

From: 5-18-72 to 2-24-78 continuing
From: _____ to _____
From: _____ to _____

4. Routes of Administration.
Intracutaneous &
Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 - .5 cc.

5. Dosage by each route:
Given weekly for 12 weeks, then q 2 - 3 weeks.

6. Approximate number of treatments: 172

7. Patient's response: Good. This patient under my care for asthma since 1969, had severe intractable asthma & many episodes of Status Asthmaticus requiring hospital care 3-4 times yearly. Since the addition of SPL to treatment 5 years ago she has required hospitalization only twice.

8. Present condition: Good. Her symptoms are well controlled with occasional oral medication.

9. No adverse reaction to treatment.

(Signed) J. D. Baker, M.D.
Date 3-2-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 42 Male x present Age 54
Female _____ Occupation concrete contractor

Diagnosis: Perennial allergic rhinitis - Serrous otitis media 7 yrs duration.
Frequent URI's

1. Initial condition for which SPL was administered.

Otitis media and nasopharyngeal infection - recurrent & severe
Intracutaneous test with SPL - positive delayed hypersensitivity
Nasopharyngeal culture after URI episode - S. aureus coag+

2. Concurrent diseases for which SPL was not administered.

Perennial allergic rhinitis

3. Patient treated with SPL

From: 4-23-71 to 9-19-77
From: _____ to _____
From: _____ to _____

4. Routes of Administration.
Intracutaneous &

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 - .5 cc

5. Dosage by each route:

Given weekly for 15 weeks then interval lengthened gradually to 4 weeks

6. Approximate number of treatments: 161

7. Patient's response: Good. Symptoms subsided gradually and after 18 months has been symptom-free except on two occasions, both mild and of brief duration. No trouble in last 2 years.

8. Present condition: Good. Treatment was stopped after 9-19-77 and patient will return p.r.n.

9. No adverse reaction to treatment.

(Signed)
Date

[Signature]
3-11-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 43 Male present Age 70
Female x Occupation

Diagnosis: Chronic Sinusitis & Bronchitis - Seasonal pollensitis

1. Initial condition for which SPL was administered.
Sinusitis, p.n. drip, chronic severe cough for 3 years
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
Seasonal Pollensitis

3. Patient treated with SPL

From: 10-12-72 to 1-27-78 continuing treatment
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 cc

5. Dosage by each route:
Above dose given weekly for 12 weeks then q 2 - 4 weeks

6. Approximate number of treatments: 77

7. Patient's response: Very good. Symptoms improved rapidly and after
3 months complete relief except for very occasional brief flare-ups.

8. Present condition: Good - no complaints

9. No adverse reactions to treatment.

(Signed) J. D. [Signature]
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 44 Male present Age 70
Female x Occupation housewife

Diagnosis: Recurrent acute sinusitis, frequent URI's

1. Initial condition for which SPL was administered.
Recurrent acute sinusitis, otitis media & serrous otitis bilateral - 3 yr. duration. Nasopharyngeal culture - 3 done, 2 positive for predominant Staph aureus coag +.
Intracutaneous test with SPL - positive delayed hypersensitivity
2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 6-27-72 to 2-15-78 continuing
From: to
From: to

4. Routes of Administration.

Intracutaneous
&
Subcut. x Intranasal Topical Other
SPL .1 cc SPL .5 - .5 cc

5. Dosage by each route:

Given weekly for 16 treatments then q 2 - 4 weeks as indicated

6. Approximate number of treatments: 96

7. Patient's response: Excellent control of URI's & Acute sinusitis complete after 8 months. Serrous otitis improved and after 10 months has not recurred.

8. Present condition: Fine no complaints. Continuing treatment monthly on a prophylactic basis.

9. No adverse reactions to treatment.

(Signed) JL B. [Signature]

Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 45 Male present Age 38
Female x Occupation housewife-florist

Diagnosis: Recurrent sinusitis year round with malaise, fever. 3-5 times yearly for 6 years.

1. Initial condition for which SPL was administered.
Recurring sinusitis and infection, throat & bronchi.
Intracutaneous test with SPL - positive delayed hypersensitivity
Nasopharyngeal culture showed Staph aureus coagulase +.

2. Concurrent diseases for which SPL was not administered.
None

3. Patient treated with SPL

From: 11-19-71 to 2-10-78 continuing
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3-.5 cc

5. Dosage by each route:

Treatment given weekly for 4 months then every two to four weeks as indicated.

6. Approximate number of treatments: 151

7. Patient's response: Very good. No symptoms of sinusitis, malaise, fever etc. after 6 weeks of treatment and no recurrences to date.

8. Present condition: Fine - continuing prophylactic treatment.

9. No adverse reactions to treatment.

(Signed) J. D. Baker M.D.
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 46 Male previous Age 51 Age at start of treatment-46
Female x Occupation perfume factory

Diagnosis: Bronchial asthma -- frequent acute URI's

1. Initial condition for which SPL was administered.
Acute URI's & asthma - hospitalized 3 times in 10 months before treatment.
Intracutaneous test with SPL positive delayed sensitivity reaction

2. Concurrent diseases for which SPL was not administered.

Seasonal pollenosis

3. Patient treated with SPL

From: 11-6-73 to 2-21-78 continuing treatment
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 - .5 cc

5. Dosage by each route:

6. Approximate number of treatments: 137
weekly doses for 18 weeks then every 2 - 3 weeks.

7. Patient's response: Gradual improvement in frequency of severity of
URI's and resulting asthma. No hospitalizations for 26
months to date.

8. Present condition: Improved - URI's, cough, and asthma mild and infrequent.

9. No reactions to treatment.

(Signed) J. D. [Signature]
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 47 Male present Age 71
Female x Occupation housewife

Diagnosis: Bronchial Asthma chronic - Many acute URI episodes- Asthma 7 yrs duration.

1. Initial condition for which SPL was administered.
Frequent severe episodes of asthma usually flared up by infection or allergen exposure.
Intracutaneous test with SPL positive delayed hypersensitivity
2. Concurrent diseases for which SPL was not administered.
Seasonal pollenosis

3. Patient treated with SPL

From: 9-17-71 to 11-29-77
From: to
From: to

4. Routes of Administration.
Intracutaneous &

Subcut. x Intranasal x Topical Other
SPL . 1 cc. SPL .3 cc

5. Dosage by each route:

given weekly for 24 doses then q 2 - 3 weeks

6. Approximate number of treatments: 147

7. Patient's response: Severity & frequency of URI attacks improved, asthma was easier to control, but patient's environment at home was poor and she could not change it. Asthma was less frequent & easier to control but results were only fair.

8. Present condition: Patient has moved to a much improved home environment, is continuing treatment in Florida since 11-29-77 and to date is doing very well. Checked by telephone 2-20-78

9. No adverse reaction to treatment.

(Signed) J. S. Baker, M.D.

Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 48 Male present Age 43
Female x Occupation housewife

Diagnosis: Recurrent bronchitis. Mild asthma - Seasonal pollenosis

1. Initial condition for which SPL was administered.
Recurrent bronchitis & asthma. Frequent URI's
Intracutaneous test with SPL - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
Seasonal pollenosis

3. Patient treated with SPL

From: 9-20-72 to 2-13-78 continuing
From: to
From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3-.5 cc

5. Dosage by each route:
doses weekly for 14 weeks, then at 2 -3- 4 week intervals as indicated

6. Approximate number of treatments: 129

7. Patient's response: Good - after 4 months no asthma, very few URI episodes
no bronchitis

8. Present condition: Good Continued treatment q 4 weeks as prophylaxis

(Signed) *[Signature]*
Date 3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 49 Male Age
Female Occupation

Diagnosis: Recurrent sinusitis & bronchitis & asthma - acute URI's - 4-5 yrs. duration.

1. Initial condition for which SPL was administered.

As above.

Nasopharyngeal culture - predominant Staph aureus coag +

Intracutaneous Staphage test - positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.

None

3. Patient treated with SPL

From: 6-3-71 to 2-25-78

From: to

From: to

4. Routes of Administration.

Subcut. x Intranasal x Topical Other
SPL .1 cc SPL .3 - .5 cc

5. Dosage by each route:

weekly for 20 weeks then q 2 - 3 weeks

6. Approximate number of treatments: 161

7. Patient's response: Good. A sharp reduction in URI episodes and no acute sinus attacks after 14 months of treatment.

8. Present condition: Much improved and continuing prophylactic treatment.

9. No adverse reactions to treatment.

(Signed)

Date

J. E. B. M. M. M.
3-10-78

Patient Treated with Staphage Lysate Therapy. (SPL)

Case Report

Patient No. 50

Male _____
Female x

Age 49 at start of treatment
Occupation housewife & office work

Diagnosis: Recurrent sinusitis, about 4 years

1. Initial condition for which SPL was administered.
Recurring acute sinusitis, pharyngitis, cervical adenitis, temperature, malaise etc - 4 - 6 times yearly.
Nasopharyngeal culture - 2 done - one showed predominant Staph aureus coag. +
Intracutaneous test with SPL positive delayed hypersensitivity

2. Concurrent diseases for which SPL was not administered.
Seasonal pollenosis

3. Patient treated with SPL

From: 11-6-75 to 1-19-78
From: _____ to _____
From: _____ to _____

4. Routes of Administration.
Intracutaneous &

Subcut. x Intranasal x Topical _____ Other _____
SPL .1 cc SPL .3 - .5

5. Dosage by each route:
weekly for 9 weeks then q 2 to 4 weeks as indicated

6. Approximate number of treatments: 53

7. Patient's response: Very satisfactory. No acute attacks after 7 treatments. Is continuing treatment prophylactically

8. Present condition: Good

(Signed) J. D. Baker, M.D.
Date 3-16-78

DEPARTMENT OF THE AIR FORCE
USAF MEDICAL CENTER, KEESLER (ATC)
KEESLER AIR FORCE BASE, MISSISSIPPI 39534



REPLY TO
ATTN OF:

SUBJECT:

15 May

TO

Dear Mr Lincoln,

The VA study is approximately 5 months old. We have tested 125 patients with SPL and have treated 30 patients. We have not had an allergic reaction nor other untoward effects of SPL administration, either intramuscularly, intracerebral or by mouth.

Hope this will help.

John S Silva, M.D.

AIR FORCE—A GREAT WAY OF LIFE

RECEIVED	5/30/78
BY	Shirley Shelley
JENNIE C. FARRISON	
HEARING CLERK, FDA	

TITLE: CORRELATION OF PREOPERATIVE IMMUNE RESPONSES WITH
POSTOPERATIVE INFECTION RATES

PRINCIPAL INVESTIGATOR: JOHN S. SILVA, M.D.

ASSOCIATE INVESTIGATOR: ERIC P. BRESTEL, M.D.

FROM: DEPARTMENT OF SURGERY
USAF MEDICAL CENTER,
KEESLER AFB, MS 39534

SUBMITTED TO: INSTITUTIONAL REVIEW COMMITTEE
USAF MEDICAL CENTER

1 APRIL 1978

APPROVAL DATE: 12 April 1978, HUMAN INVESTIGATION COMMITTEE
12 April 1978, INSTITUTIONAL REVIEW COMMITTEE
PENDING APPROVAL -SGER, HQ USAF

START DATE: 1 JUNE 78, TENTATIVE

Clinical Investigation Proposal: STUDY OF PREOPERATIVE IMMUNE RESPONSES AND
CORRELATION WITH RISK OF INFECTION IN SURGICAL PATIENTS.

Infection is the major cause of morbidity and mortality following trauma or surgery. In 1967, an estimated 1,400,000 patients developed postoperative wound infections while another 2,000,000 had hospital acquired infections (1). Swartz estimated in hospital cost per infection at approximately \$7,000 per patient (2). Ten years ago the total cost of infections was nearly 23 billion dollars; with inflated medical costs this figure may be doubled by 1980. In addition to this staggering economic loss, the cost of suffering and loss for each patient cannot be estimated.

The rate of infection in surgical wounds can be approximated by the following equation:

$$I_r = \frac{D \times V}{HR}$$

where D equals the dose of contaminating bacteria with virulence V and HR defines the host resistance. Factors which increase D increase the rate of infection as noted in clean case $I_r = 5.1\%$, while clean-contaminated and dirty cases had 10.8% and 22% infection rates respectively (3). Initial attempts to reduce infection rates have been directed toward lowering the dose of bacteria contaminating surgical wounds. Thus, a recent manual from the committee on Control of Surgical Infections of the American College of Surgeons (4) detailed methods for the reduction of bacterial contamination in the operating room on the patient and by the surgeon. Additionally, they described the judicious use of prophylactic, preoperative antibiotics in selected cases. Despite these advances wound infections and fatal sepsis continue to be a major problem.

While local and systemic factors are certainly important in the pathogenesis of surgical infections, in the final analysis, it is the host defense mechanisms which are deficient in elimination of invading microorganisms. For example, diabetic, obese,

and malnourished patients are known to have a significantly higher rate of infection than other surgical patients (5). What are the abnormalities of host resistance in patients who are at high risk for developing sepsis? Only recently has data accumulated to suggest that there are humoral and cell-mediated immunological defects in these patients.

There are a number of inherited disorders of humoral immunity and neutrophil function, both of which are characterized by recurrent bacterial infections (6). Acquired disorders of phagocytosis and intracellular killing of bacteria have been demonstrated in burn patients (7), septic patients (8) and traumatized patients (9). Generalized immunological defects, which occur with surgery or trauma, were reviewed (9) and in several studies there were correlations between depressed immunity and sepsis or mortality. These observations were usually noted in patients who were severely burned, traumatized or malnourished, such that abnormalities of host resistance would be expected from their clinical course.

The status of host resistance has not been a component of the routine pre-operative evaluation of surgical patients. In one series MacLean and associates (10, 11, 12) have utilized the preoperative assessment of host immune status by simple skin tests with five recall antigens. Their results were impressive. In patients who were unable to react to two or more antigens, 20% had septic episodes and 33% died. Normal patients, on the other hand, had less than 5% incidence of sepsis. Thus, it would appear that failure to develop skin test responses to standard recall antigens - anergy - can identify patients who are increased risk for sepsis or death. The failure to develop skin test reactivity to a new antigen, dinitrochlorobenzene, also correlated with a marked increased incidence of sepsis and mortality (10).

To date the only therapy directed toward enhancement to host resistance has been total parenteral nutrition in malnourished patients (12). This will only supply metabolic fuel for the host and does not augment impaired immunity. Howard succint-

ly states "...nonspecific adjuvants (of immunity) would be even more effective in the prevention or treatment of infections in patients rendered immunologically deficient by surgical operation or trauma." (9). While a number of immunostimulants have been used in cancer patients, none have been tested in the septic surgical patient.

The potentiating agent we propose to evaluate is called Staphage Lysate (SPL) which had been investigated by the author as a measure of immunodepression in cancer patients. Somewhat unexpectedly, it was found that SPL stimulated patients who were immunodepressed (13). Numerous other clinical and animal studies have demonstrated its ability to stimulate phagocytosis and cellular immunity. In animals, SPL increased the phagocytosis and intracellular killing of staphylococci and E. coli (14, 15). In one series it completely protected mice against a lethal challenge with E. coli injected intraperitoneally (15). Staphage Lysate also protected mice against fatal challenge with vaccinia and influenza viruses (16, 17).

Clinically, SPL has been used successfully in the treatment of chronic staphylococcal infections (18), abscesses and pneumonias (19), and infectious asthma (20). Approximately 95% of normal individuals will have positive skin tests (21) and marked in vitro stimulation of T- and B- lymphocytes (22) using SPL as an antigen. This high degree of in vitro reactivity and clinical efficacy of SPL is related to the unique immunobiology of the staphylococcus. Both humoral and cellular immune mechanisms are necessary to maintain a homeostatic relationship with the ubiquitous staph bacterium, which inhabits nearly all of the body's environment. As a result, the immune system is continually stimulated with staphylococcal antigens. In a yet unknown manner, SPL is able to activate the central cell for the immune system, the macrophage. The end result of a dose of SPL is a population of "angry" macrophages which then have increased ability to ingest and kill bacteria (23). Thus, SPL is a logical choice for use in patients with impaired host resistance to bacteria.

Finally, SPL is safe to use, unlike levamisole and BCG. Over 20,000,000 doses have been given, either intradermally, intravenously or by aerosol. No anaphylactic reactions have occurred. The only untoward reactions reported have been of a mild vaccine-type, characterized by low-grade fever and malaise usually subsiding within 24 hours.

In summary, the goals of this project are:

1. Correlate the preoperative assessment of host resistance, determined by skin testing, with postoperative infection rates.
2. Enhance host resistance in anergic patients with Staphage Lysate.
 - (a) document the change in basic immunoresistance achieved - via in vitro studies.
 - (b) document the change in clinical immunoresistance achieved via monitoring the postoperative infection rate, or general attack rate of nosocomial infection in non-operated patients.

REFERENCES

1. Altmeier, WA: Iatrogenic infection in surgical patients - the problem. Third Symposium on Control of Surgical Infections, American College of Surgeons, Washington, DC Jan 10-11, 1972.
2. Swartz, L; The cost of hospital infections - Presented at First Symposium on Control of Surgical Infections, American College of Surgeons, Fort Lauderdale Fla, Mar 5-7, 1970.
3. Cruse, JPE, and Foord, R: A five year prospective study of 23,649 surgical wounds. Arch. Surg. 107:206, 1973.
4. Manual on Control of Infection in Surgical Patients
5. Howard, J.M. et al: Postoperative wound infections: the influence of ultra-violet irradiation of the operating room and other factors. Ann.Surg.160 (Suppl.): 1964.
6. Quie, PG: Infection associated with phagocytic cell deficiencies. Infection and the Compromised Host. Edited by J Allen, Baltimore, William and Wilkins Co. 1976.
7. Curreri, PW, Heck, EL, Browne, L, and Baxter, CR: Stimulated NBT test to assess neutrophil antibacterial function: prediction of wound sepsis in burned patients. Surg. 77:6, 1973.
8. Weinstein, RJ and Young, LS.: Neutrophil function in gram-negative rod bacteremia. J. Clin. Invest. 58: 190, 1976.
9. Howard, RJ and Simmons, RL: Acquired immunological deficiencies after trauma and surgical procedures. Surg. Gyn. Obst,139: 771, 1974.
10. MacLean, LD, Meakins, JL, Taguchi, K. et al.: Host resistance in sepsis and trauma. Ann. Surg. 182: 207, 1975.

1. Pietoch, JB, Meakins, JL and MacLean, LD.: The delayed hypersensitivity response: Application in clinical surgery. Surg. 82:349, 1977.
12. Meakins, JL, Pietsch, JB, Bubenich, O et al.: Delayed hypersensitivity: Indicator of acquired failure of host defense in sepsis and trauma. Ann Surg. 186: 241, 1977.
13. Silva, J.S., Dean, JH, McCoy, JL et al.: A sensitive parameter for detection of depressed lymphoproliferative responses in cancer patients. Proc. Amer. Assoc. Cancer Res., 18: 233, 1977.
14. Shayegani, M, DeCourcy, SJ and Mudd, S.: Cell-mediated immunity in mice infected with S. aureus and elicited with specific bacterial antigens. J.RES. 14: 44, 1973.
15. Shayegani, M, and Parsons, IM.: Nonspecific cell-mediated resistance to E. coli in mice. J. RES., 16 Suppl: 48a, 1974.
16. Allen, EG and Mudd, S.: Protection of mice against vaccinia virus by bacterial infection and sustained stimulation with specific bacterial antigens. Infect. Immun. 7: 62, 1973.
17. Mudd, S. and Shayegani, M.: Delayed-type hypersensitivity to S. aureus and its uses. Ann.NY Acad.Sci. 236:244, 1974.
18. Salmon, GG and Symonds, M.: Staphage Lysate therapy in chronic staphylococcal infections. J. Med.Soc.N.J. 60: 180, 1963.
19. Baker, AG.: Staphylococcus bacteriophage lysate, topical and parenteral use in allergic patients. Penn.Med.J. 66: 25, 1963.
20. Baker, AG.: Treatment of Chronic bronchial asthma. Am. Pract. 9: 591, 1958.
21. Mudd, S, Taubler, JH, and Baker, AG.: Delayed-type hypersensitivity to S. aureus in human subjects. J.RES. 8:493, 1970.
22. Dean, JH, Silva, JS, McCoy, JL.: In vitro human reactivity to Staphylococcal Phage Lysate. J.Immunol. 115: 1060, 1975.
23. Mudd, S.: Resistance against S. aureus. JAMA 218: 1671, 1971.

4. Armitage, P.: Statistical Methods in Medical Research. New York: Wiley, 1971
25. Tarpley, JL, Twomey, PL, Catalona, WG, et al: Suppression of cellular immunity by anesthesia and operations. J. Surg. Res. 22: 195, 1977.

STUDY PROTOCOL

All surgical patients, except those in whom minor surgical procedures are planned, will be informed of the purpose of this study. After an informed agreement has been accomplished patients will be divided into groups as follows:

I. Elective surgery patients.

Patients who are scheduled for non-emergency procedures will be skin tested two weeks preoperatively. Patients who are either anergic (A) or relatively anergic (RA) will be randomized into treatment or control groups. Randomization will be done by the serial sealed envelope method as described by Armitage (24). Thus, there will be three subgroups in preoperative testing: I_A - normal reactive; I_B - A+ RA, untreated; I_C - A + RA, treated with SPL.

II. Emergency surgical patients.

Patients who are admitted for emergency surgery will be tested the morning following surgery. Anergic or RA patients will be randomized into two groups, one a control group who will receive no further therapy, and two, a treatment group who will receive SPL therapy.

III. Other surgical patients.

Other patients who are admitted to the surgical service but who do not undergo surgery, in whom risk of sepsis is significant, will be studied and randomized into groups as stated above.

Skin testing will be performed as described (12). Briefly, 0.1 cc of a 1,000 u/cc each of streptokinase-streptodornase (Varidase), candidin and trichophytin; 0.1 cc SPL; and 0.1 cc of 50 T.U./cc purified protein derivative will be injected intradermally into an alcohol prepared volar forearm. Reactions will be read at 24 and 48 hours as the millimeters of induration of two perpendicular lines. Skin testing will be repeated 2-4 days postoperatively, then weekly until discharge.

Following any major change in clinical course patients will be retested at that time. For sensitization to DNCB as described by Tarpley (25), 2000 and 50ug DNCB in 0.1 cc acetone will be applied to the upper forearm and occluded for 24 hours. Responses are read at 14 days. If no reaction occurs, a 50 ug DNCB on 0.1 cc acetone challenge dose is applied and read 48 hours later.

Group I patients randomized to receive SPL will have the following regimen:

0.1 cc SPL intradermally and 0.3 cc SPL via aerosol on day 1.

1.0 cc SPL orally on day 2

repeated twice weekly prior to surgery. In addition the last therapy cycle will start on the day prior to surgery and be repeated on the second and fifth postoperative days then stopped. Patients in group II or III will receive the same regimen to start on day of randomization with a three day cycle until ten cycles or discharge.

TITLE: CORRELATION OF PREOPERATIVE IMMUNE RESPONSES
WITH POSTOPERATIVE INFECTION

PRINCIPLE INVESTIGATOR: JOHN S. SILVA, M.D.

ASSOCIATE INVESTIGATOR: THOMAS HODGES, M.D.

FROM: DEPARTMENT OF SURGERY

VA HOSPITAL, BILOXI DIVISION

BILOXI, MS 39534

SUBMITTED TO: RESEARCH & EDUCATION COMMITTEE

APPROVAL DATE: 15 NOV 77

START DATE: 15 Dec 77

STATEMENT OF STUDY

(presently ongoing at Biloxi VA Hospital)

1. BACKGROUND

Infection is the major cause of morbidity and mortality following surgery or trauma. In 1967, an estimated 1.4 million patients had postoperative wound infections (1) with a total cost of nearly 23 billion dollars (2). The rate of infection can be approximated $I_r = D.V/HR$, where D= dose of bacteria with a virulence V and HR represents the host resistance. Factors which increase D increase I_r as noted in clean case infection rate - 5.1%, but in clean-contaminated and dirty cases the rates are 10.8 and 22% respectively (3). Most attempts to reduce infection rates have been directed towards lowering the dose of bacteria.

While D is certainly important in the development of wound infections, in the final analysis, it is deficient host mechanisms which fail to eliminate invading microorganisms. A number of acquired defects of HR have been noted. Impaired phagocytosis and intracellular killing of bacteria have been reported in septic and burn patients (4-6). Of particular importance is the series of preoperative assessment of host resistance by MacLean (7-9). By simple skin tests to recall antigens (PPD, Varidase, mumps, candida and trichophyton) they were able to identify patients with impairment of HR. Patients who did not respond to more than one antigen had 20% septic episodes and 33% mortality, compared to normals with less than 5% incidence of sepsis.

2. PROBLEM

Having a method for the identification of patients who have increased risk for sepsis and death, what can be done? Howard succinctly answers, "nonspecific adjuvants (of host resistance) would be even more effective in prevention or treatment of infection in patients rendered immunologically deficient by surgery or trauma." (6)

Method of study:

After informed consent surgery patients will be skin tested preoperatively with recall antigens as previously described (7). Patients who do not react to two or more antigens will be randomized into treatment or control groups by the serial sealed envelope method. Skin testing will be repeated 2nd - 4th postoperative day and weekly thereafter.

Patients selected to receive the therapy regimen will have a test dose of 1:100 SPL, 0.1 cc intradermally, to assess allergic reactions. If there are none, the patient will receive 0.1 cc SPL intradermally followed by 0.3 cc via aerosol on day one and 1.0 cc SPL orally on day two. The protocol will start on the day prior to surgery and be repeated on the second and fifth postoperative days. Infection surveillance will be carried out by the principal investigator with tabulation of wound infections, septic complications and nosocomial infections in both control and treatment groups. Data will be analyzed with Chi square statistic using a 2 x 2 square and the Yates continuity correction.

Pertinent work on this problem by others:

An exhaustive review of the literature failed to reveal other studies designed to potentiate host resistance and reduce septic complications.

In animals sensitized to S. aureus, Staphage Lysate augmented phagocytosis and intracellular killing of both S. aureus and E. coli (10,11). In addition, SPL also protected mice against otherwise fatal doses of vaccinia and influenza viruses (12,13). Clinically, SPL has been used successfully in the treatment and prevention of chronic staphylococcal infections (14) abscesses (15) and asthma (16). Over 20,000,000 doses of SPL have been administered without serious allergic reactions. No documented anaphylactic reaction has occurred.

Pertinent work in this field by the principal investigator:

Staphage Lysate was found to stimulate immunodepressed cancer patients (17) as well as stimulate both T- and B-lymphocytes (18). It is currently under investigation by the principal investigator as a measure of the immunocompetence of cancer patients and has been approved for use as a skin test reagent. We are now attempting to characterize the ability of SPL to stimulate in vitro the movement of neutrophils and monocytes. To our knowledge, this property has not been reported in any other substance and may be causally related to the immunopotentiating ability of SPL.

REFERENCES

1. Altmeier, W. A.: Iatrogenic infection in surgical patients - the problem. Third Symposium on Control of Surgical Infections, American College of Surgeons, Washington, D.C., Jan 10-11, 1972.
2. Swartz, L.: The cost of hospital infections - Presented at First Symposium on Control of Surgical Infections, American College of Surgeons, Ft. Lauderdale, Fla., March 5-7, 1970.
3. Cruse, J.P.E., and Foord, R.: Arch. Surg. 107: 206, 1973.
4. Curreri, P. W., Heck, E.L., Browne, L., and Baxter, C.R.: Surg. 77:6, 1973.
5. Weinstein, R.J. and Young, L.S.: J. Clin. Invest. 58: 190, 1976.
6. Howard, R. J. and Simmons, R.L.: Surg. Gyn. Obst. 139: 771, 1974.
7. MacLean, L.D., Meakins, J.L., Taguchi, K. et al: Ann. Surg. 182: 207, 1975.
8. Pietsch, J.B., Meakins, J. L. and MacLean, L.D.: Surg. 82: 349, 1977.
9. Meakins, J. L., Pietsch, J.B., Bubenich, O., et al: Ann. Surg. 186: 241, 1977.
10. Shayegani, M., DeCourcy, S.J., and Mudd, S.: J. RES. 14: 44, 1973.
11. Shayegani, M., and Parsons, L.M.: J. RES., 16 Suppl.: 48a, 1974.
12. Allen, E.G. and Mudd, S.: Infect. Immun. 7: 62, 1973.
13. Mudd, S. and Shayegani, M.,: Ann. NY Acad. Sci. 236:244, 1974.
14. Salmon, G. G. and Symonds, M.: J. Med. Soc. N.J., 60: 180, 1963.
15. Baker, A.G.: Penn. Med. J.: 66.: 25, 1963.
16. Baker, A.G.: Am. Pract., 9: 591, 1958.
17. Silva, J.S., Dean, J.H., McCoy, J.L. et al. Proc. Amer. Assoc. Cancer Res. 18: 233, 1977.
18. Déan, J.H., Silva, J.S., McCoy, J.L.: In vitro human reactivity to Staphylococcus phage lysate. J. Immunol. 115: 1060, 1975.