New in vitro study on dapsone (diaminodiphenyl sulfone), and dapsone combination therapy (DDS CT) was just published by Dr. Richard Horowitz et al. and provides hope of effective treatment for patients with persistent Lyme disease.

The study is suggestive that dapsone combination therapy may well characterize both a novel and successful option to treat *Borrelia burgdorferi* persister cells in the form of biofilm. There are several hypotheses causing great controversy regarding the persistent symptoms that greater than 10-20% of patients are experiencing after infection with *B. burgdorferi*. The study evaluated the effectiveness of dapsone against *B. burgdorferi* biofilm forms of the bacteria by testing in individual as well as in combination therapy with several
drugs including cefuroxime, doxycycline, rifampin, and azithromycin in vitro.

The results were robust, showing that using dapsone alone or in various combinations with the above stated drugs significantly reduced the mass and protective glycosaminoglycan layer affecting the capability of the biofilm form of *B. burgdorferi*. DDS CT efficacy on the *B. burgdorferi* biofilms was also determined by ascertaining the biofilm polysaccharide matrix content, glycosaminoglycans (GAG).

Study results showed the most efficient single use antibiotic at reducing biofilm was dapsone at both 10 µM and 50 µM concentrations, showing 69% and 58% residual viability respectively. Used individually, other antibiotic treatments (doxycycline, cefuroxime, and azithromycin) proved to be less efficient and, in some cases, even caused an increase biofilm mass. In contrast, triple and quadruple combination antibiotic therapies showed greater efficacy. The most significant finding was that dapsone used individually or in combination therapy with rifampin, and a tetracycline and/or a macrolide and/or a cephalosporin showed great promise in the treatment of persistent Lyme patients, with prior clinical studies demonstrating improvement in many of the debilitating symptoms that patients suffer including fatigue, pain, neuropathy, sleep disturbances, cognitive dysfunction, sweats and flushing. It is urgent that randomized trials are launched to evaluate the clinical effectiveness of DDS CT as the spread of Lyme disease continues to increase on a global scale.

**Read the full journal article:** Effect of dapsone alone and in combination with intracellular antibiotics against the biofilm form of *B. burgdorferi*

**Read the 2016 article:** The Use of Dapsone as a Novel “Persister” Drug in the Treatment of Chronic Lyme Disease/Post Treatment Lyme Disease Syndrome
LymeAid 4 Kids Provided $383,000 in Grants Since 2004

About LymeAid 4 Kids (LA4K) – The Lyme Disease Association started LA4K fund in 2003 and has helped children all over the U.S. and in Canada. Developed with the help of author Amy Tan, the fund is for children who do not have/receive insurance coverage for Lyme disease treatment for children and have economic difficulties. Donations can be made on-line to LDA help this LA4K fund as there are so many applicants, the fund does run out of money frequently. [Click here for application]

Total Funds distributed since 2004 totals $383,000

In 2019, 38 applicants were awarded grants for a total of $38,000:
1 California
2 Connecticut
1 Florida
In 2018, 7 applicants were awarded grants for a total of $7000:
1 Pennsylvania
2 Maryland
1 North Carolina
1 Tennessee
2 Mississippi

In 2017, 18 applicants were awarded grants for a total of $17,400:
4 Oregon
5 Connecticut
1 New York
1 Pennsylvania
4 Maryland
1 Indiana
1 Kansas
1 Idaho

In 2016, 45 applicants were awarded grants for a total of $45,000:
6 New York
2 Ohio
2 Oregon
1 Texas
5 California
1 Illinois
2 North Carolina
1 Michigan
1 Mississippi
2 Tennessee
5 New Jersey
7 Virginia
In 2015, 26 applicants were awarded grants for a total of $26,000:
6 Maine
4 Ohio
1 Connecticut
1 Michigan
2 Washington
2 New York
1 Illinois
1 North Carolina
3 Indiana
1 California
1 Oklahoma
3 Oregon

In 2014, 9 applicants were awarded grants for a total of $9000:
1 Texas
1 Washington
1 Wisconsin
1 Maryland
1 Illinois
2 Connecticut
1 New York
1 California

In 2013, 11 applicants were awarded grants for a total of $9,000:
5 California
1 New Jersey
2 New York
In 2012, 11 applicants were awarded grants for a total of $11,000:
3 Idaho
1 Illinois
1 Iowa
2 New York
1 Massachusetts
1 Tennessee
1 Wisconsin
1 Florida

In 2011, 35 applicants were awarded grants for a total of $35,000:
1 British Columbia
3 California
2 Connecticut
2 Georgia
5 Iowa
4 Illinois
2 Massachusetts
2 Missouri
1 New Hampshire
4 New Jersey
1 New York
3 Ohio
2 Pennsylvania
1 Rhode Island
1 Texas
1 Washington

In 2010, 29 applicants were awarded grants for a total of $29,000:
3 California for a total of $3,000
5 Connecticut for a total of $5,000
1 Georgia for a total of $1,000
3 Illinois for a total of $3,000
1 Maine for a total of $1,000
1 Missouri for a total of $1,000
1 New Hampshire for a total of $2,000
In 2009, 20 applicants were awarded grants for a total of $20,000:

4 Connecticut for a total of $4,000
3 Massachusetts for a total of $3,000
1 Rhode Island for a total of $1,000
2 New Jersey for a total of $2,000
2 California for a total of $2,000
2 New York for a total of $2,000
3 Pennsylvania for a total of $3,000
2 Nevada for a total of $2,000
1 British Columbia for a total of $1,000

In 2008, 36 applicants were awarded grants for a total of $36,000:

1 Ohio for a total of $1,000
1 Rhode Island for a total of $1,000
1 Maine for a total of $1,000
3 Massachusetts for a total of $3,000
6 New York for a total of $6,000
1 Tennessee for a total of $1,000
2 California for a total of $2,000
2 Pennsylvania for a total of $2,000
4 Connecticut for a total of $4,000
1 Florida for a total of $1,000
4 Kansas for a total of $4,000
1 New Hampshire for a total of $1,000
4 Texas for a total of $4,000
3 Georgia for a total of $3,000
2 New Jersey for a total of $2,000

In 2007, 45 applicants were awarded grants for a total of $45,000:

1 California for a total of $1,000
6 Connecticut for a total of $6,000
1 Florida for a total of $1,000
2 Georgia for a total of $2,000
4 Illinois for a total of $4,000
3 Indiana for a total of $3,000
1 Iowa for a total of $1,000
2 Massachusetts for a total of $2,000*
3 New Hampshire for a total of $3,000
1 New Mexico for a total of $1,000
5 New York for a total of $5,000
2 Ohio for a total of $2,000
8 Pennsylvania for a total of $8,000
1 Rhode Island for a total of $1,000
1 Texas for a total of $1,000
1 West Virginia for a total of $1,000
1 Wisconsin for a total of $1,000
2 Canada, (have US doctors) for a total of $2,000

*$780 of this total was not used and returned to the fund

In 2006, 19 applicants were awarded grants for a total of $19,000:
1 Connecticut for a total of $1,000
3 Pennsylvania for a total of $3,000
8 Massachusetts for a total of $8,000
3 New York for a total of $3,000
1 California for a total of $1,000
1 Arizona for a total of $1,000
1 Maryland for a total of $1,000
1 Illinois for a total of $1,000

In 2005, 28 applicants were awarded grants for a total of $28,000:
2 Rhode Island for a total of $2,000
1 Texas for a total of $1,000
2 New Jersey for a total of $2,000
1 Maine for a total of $1,000
6 California for a total of $6,000
3 Massachusetts for a total of $3,000
5 Connecticut for a total of $5,000
2 New York for a total of $2,000
4 Pennsylvania for a total of $4,000
2 Canada (have US doctors) for a total of $2,000

In 2004, 9 applicants were awarded grants for a total of $9,000:
1 West Virginia for a total of $1,000
3 Texas for a total of $3,000
2 Connecticut for a total of $2,000
1 Massachusetts for a total of $1,000
1 Illinois for a total of $1,000
1 North Carolina for a total of $1,000

For more information on LymeAid 4 Kids click here

Prescription & Medical Bill Assistance

The Lyme Disease Association, Inc. is providing the following list as a courtesy to those seeking resources that may be helpful in treating and covering the cost of treating Lyme disease. The LDA neither warrants nor endorses the Prescription & Medical Bill Assistance resources contained on this list nor the quality of service you will receive from them. We do not make recommendations, only referrals.

America’s Pharmacy
A nationwide prescription savings program that has helped people save up to 80% on out-of-pocket medication costs. https://www.americaspharmacy.com/

Free Prescription Medications
Free prescription medications listings are provided by Needy Meds. Needy Meds is NOT a drug assistance program, they are an information provider. They provide information on manufacturer based drug assistance programs to help consumers in obtaining medications that are not covered by any insurance plan or would otherwise be too expensive. Consumers are provided information on applying for each medication/program. Program requirements may differ from drug to drug. LDA is not
Medical Bill Assistance
Medical Needs Foundation
PO Box 303
Mountain Lks, NJ 07046
Provides assistance with medical bills around Morris County NJ area

Compassionate Use Program for Mepron
For Healthcare Professionals that would like to make a request for compassionate use of a GSK investigational medicine. https://gsk-cu-portal.idea-point.com/

Lyme Test Assistance
The Lyme Test Access Program (Lyme-TAP) is a nationwide patient assistance program to provide assistance for initial Lyme-related lab tests to patients who demonstrate true financial need.
http://www.lymetap.com/

Lymelight Foundation – Grants
Anyone diagnosed with Lyme disease up to age 25 and can demonstrate a qualified financial need. Applicant must be an active patient of a Lyme-literate MD, ND or DO.
http://lymelightfoundation.org/grants/

United Healthcare Children’s Foundation Medical Grants
Provides medical grants to help children gain access to health-related services not covered, or not fully covered, by their families commercial health insurance plan. Families can receive up to $5,000 per child ($10,000 lifetime maximum per child), and do not need to have insurance through UnitedHealthcare to be eligible. Children must be 16 or younger and living in the United States. Help can be for physical, occupational and speech therapies, surgeries, counseling, prescription medications, or medical equipment including: wheelchairs, orthotics, eyeglasses and hearing aids.
http://www.uhccf.org/apply/

Disclaimer: Resources that are not part of the LDA may or may not be supportive of a chronic Lyme diagnosis but may support other conditions and factors that children may need, like wheelchairs and other modalities. It is up to the consumer and their medical practitioners to evaluate their child’s needs and if this program would be beneficial.
Public Service Announcements
For You to Share

The Lyme Disease Association has prepared video and audio public service announcements which we are presenting here for you to view, listen to and use for any educational purposes.

A 30 Second Radio PSA on Lyme Disease
.wav format

Mary McDonnell Public Service Announcement

Star of the Peabody Award Winning TV show BattleStar Galactica works with the LDA to develop a public service service announcement on Lyme Disease.

Ms. McDonnell stars as President Laura Roslin in the popular sci-fi series. She has starred in a number of movies including her Oscar-nominated roles in Dances with Wolves and Passion Fish. She serves as LDA’s national spokesperson on Lyme disease.

Click here for video
Tick Testing

There are places where the public can have ticks tested to see if they contain the Lyme bacteria, Borrelia burgdorferi, or to see if they contain other disease organisms which can infect humans or other animals. There are generally charges for these services.

LDA does not make recommendations about whether people should have ticks tested, reliability of tick testing, or whether people should wait for the results before seeking/getting treatment. Those are decisions that need to be made after reviewing material on the topic and discussing the benefits/risks with a professional.

Check with the labs for proper packaging and mailing of the ticks, the types of organisms tested for and the associated costs (e.g., Lyme disease, anaplasmosis, ehrlichiosis)

Examples of Tick Testing Laboratories*
LDA does provide contact information on some tick testing labs.
Some examples of tick-testing labs

- IGeneX Labs, Palo Alto, CA: 800-832-3200  www.IGENEX.com
See IGeneX Labs CLIA certificate http://www.personalconsult.com/CLIA.pdf

- MDL, Mt. Laurel, NJ: 877-269-0090  www.mdlab.com
Example of Government Testing Laboratories in Specific Areas
1) Monmouth County (NJ) Mosquito Control Tick Testing for Monmouth County Residents ONLY

Check with your own state health department to see if it tests ticks

Search State Health Departments
The Centers for Disease Control (CDC) offers the ability to search one or more state health departments for specific keywords or terms. Search terms are referenced against each of the state agencies checked on the search form. Results are returned ordered by state. http://www.cdc.gov/nchs/nvss/state_health_departments.htm (By clicking, you are leaving the LDA site and entering the CDC website)

College Students with Disabilities

http://weconnectnow.wordpress.com/

The We Connect Now website was created to serve college students with disabilities.

One of the goals of this site is to help college students with disabilities to succeed in their studies by getting the information and support they need, both through resources, links, blogs latest news, studying existing laws and regulation and through personal contacts.

People can share and read other people’s stories as a source of support and comfort, and take action by writing blogs, hosting an event or becoming involved in politics by knowing about upcoming legislation.

Through the jobs section, people with disabilities can get help with employment
through job posting and job searching tips.

Founded in 2008.

**Top 10 LDA Resources To Deal With Ticks**

We are constantly trying to provide products and services to help raise awareness. Please take a few minutes and review what the LDA’s top picks on its website have been over the years.

Click on pictures for links to web pages.

<table>
<thead>
<tr>
<th></th>
<th>TickLES (Kids’ 14 min prevention video)</th>
<th>Order Free Brochures (limited to 200)</th>
<th>Dr. Referral (connect to Lyme-literate doctors nationally)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image" alt="TickLES" /></td>
<td><img src="image" alt="Brochures" /></td>
<td><img src="image" alt="Referral" /></td>
</tr>
<tr>
<td></td>
<td>Other Tick-Borne Diseases (co-infections)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Tick" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How A Tick Can Make You Sick (prevention PowerPoint geared to kids, schools &amp; scouts)</td>
<td></td>
<td>Lyme Disease Case Maps (where &amp; how much US Lyme)</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Tick" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Photos (ticks, rashes and microscopic images)</td>
<td>How to Remove a Tick &amp; Prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Service Announcements (free PSAs for your own use)</td>
<td>LDA Printable Materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Columbia Lyme and Tick-Borne Diseases Research Center

Visit New Website: http://www.columbia-lyme.org/

The national New Jersey-based Lyme Disease Association, Inc. (LDA) and Connecticut-based Time For Lyme (TFL) who are affiliated organizations, partnered with Columbia in the development of this center concept and devoted a large percent of their efforts and resources over 5 years to funding the endowment for the Center. People nationwide contributed to make this effort a success.

The Lyme and Tick-Borne Diseases Research Center will use the vast resources of Columbia University in New York to bring together various disciplines from within and outside of the
university to address fundamental clinical and basic science questions that plague adults and children affected by Lyme disease.

The clinical and research mission includes studies of new diagnostic tests, clinical phenomenology, immunopathogenesis, co-infections, genetic markers of vulnerability, functional and structural brain imaging, neuropathology of post-mortem brains, and well-controlled studies of new treatments. This Center, the first such facility in the world devoted to chronic Lyme disease, will serve as a national resource, providing pilot grants to researchers nation-wide and focusing the latest scientific technology on helping to resolve the problems of chronic Lyme disease.

---

National Pesticide Information Center

Funded through a cooperative agreement between Oregon State University and the Environmental Protection Agency. It is staffed by knowledgeable scientists (multi lingual) 7 days/week 6:30am-4:30pm PST to serve as factual unbiased providers of information on pesticide chemistry, toxicology, and environmental fate to all who call.

(800) 858 7378

E-mail us: npic@ace.orst.edu

www.npic.orst.edu or Spanish www.npic.orst.edu/es

Free brochures available.
Columbia Lyme Evaluation Service

The service focuses on patients who are still experiencing symptoms after being diagnosed and treated for Lyme disease and patients who have unexplained psychiatric symptoms that may be due to Lyme or other tick-borne diseases. The goal is to provide a comprehensive evaluation seeking to also rule out other disorders that may cause the multisystemic symptoms.

For further information, please contact Dr. Kathy Corbera (212) 543-6508

Note: This evaluation service is NOT part of the Columbia Lyme & Tick-Borne Diseases Research Center