

Neurofibrillary tangle

Normal pyramidal neuron



Figure 1. Amyloid plaques and neurofibrillary tangles at specified densities in sectioned brain tissue constitute the neuropathologic criteria confirming Alzheimer's disease. Here both plaques and tangles appear

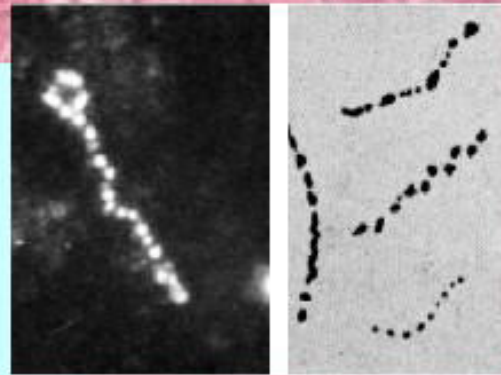
Granules vary in size ---little to big



GVB are
“Dots” inside of
“Bubbles”
Which are
Inside of
Diseased Nerve cells

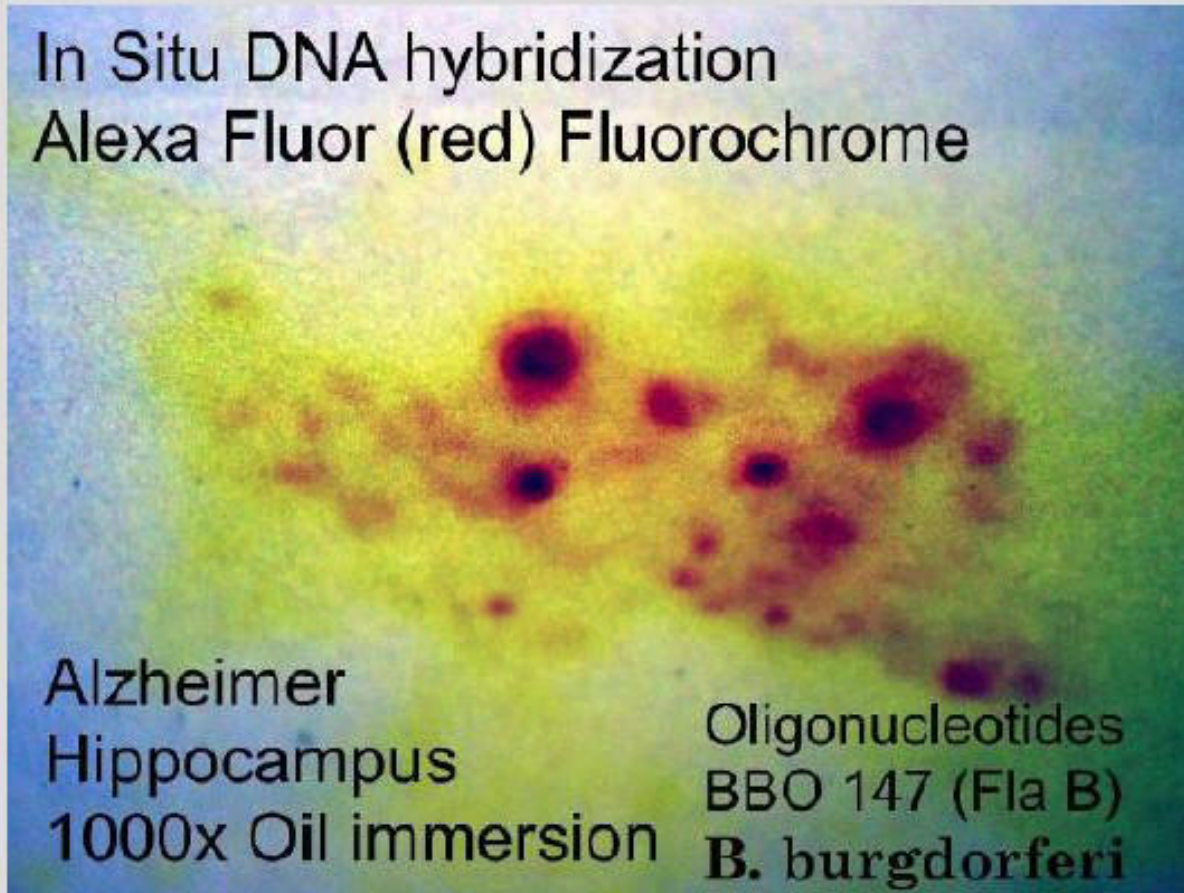
GVB Third
Requirement
for
Alzheimer's

Hypothesis: GVB in
Alzheimer's
Are the “signature” of
Granular Spirochetes
inside
Nerve cells



DNA_{in} GVB

In Situ DNA hybridization
Alexa Fluor (red) Fluorochrome



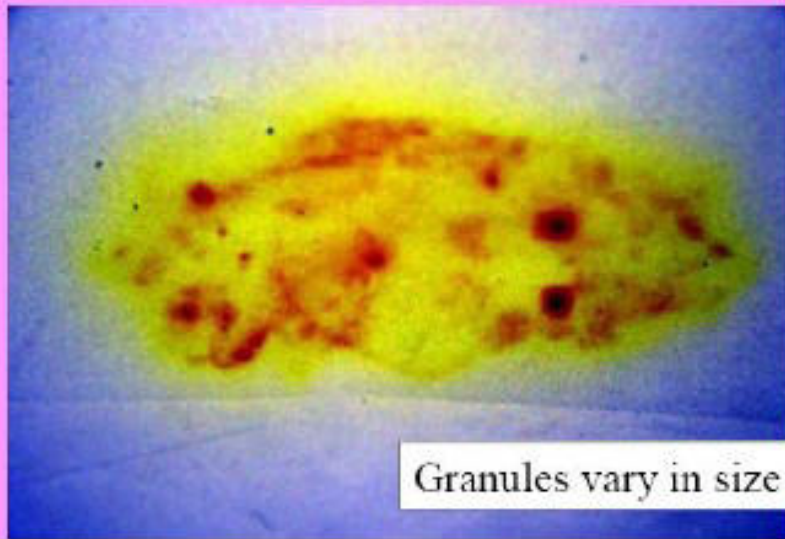
Alzheimer
Hippocampus
1000x Oil immersion

Oligonucleotides
BBO 147 (Fla B)
B. burgdorferi

DNA

in GVB

Human Alzheimer
In situ DNA hybridization for
Borrelia burgdorferi DNA

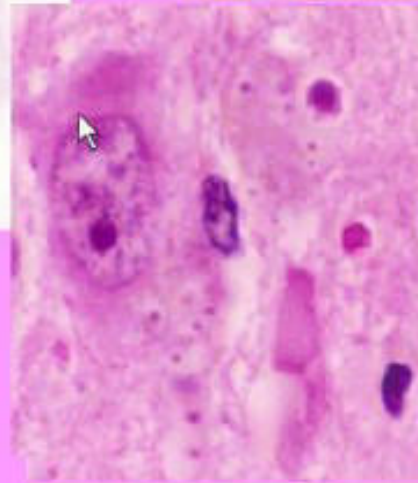


Granules vary in size – from little to big

GVB

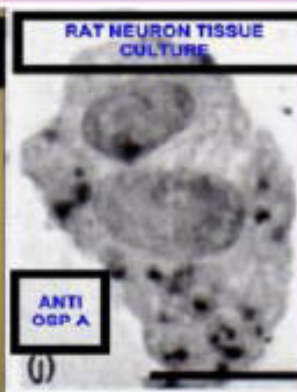


Miklossy
Rat nerve cell
H5332 monoclonal +



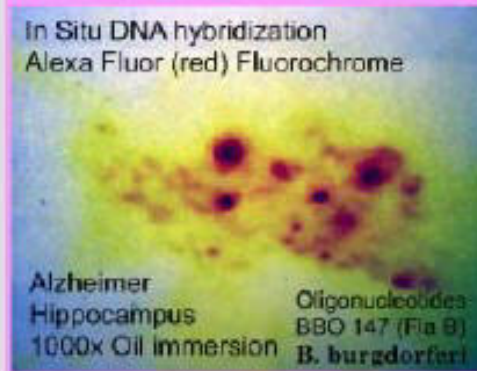
Granules vary in size – from little to big

In Situ Dna and Rat Tissue
culture



MacDonald
human Alzheimer In situ DNA

In Situ DNA hybridization
Alexa Fluor (red) Fluorochrome



Borrelia Biofilms
Dwell
Inside of Amyloid
Alzheimer's Plaques:

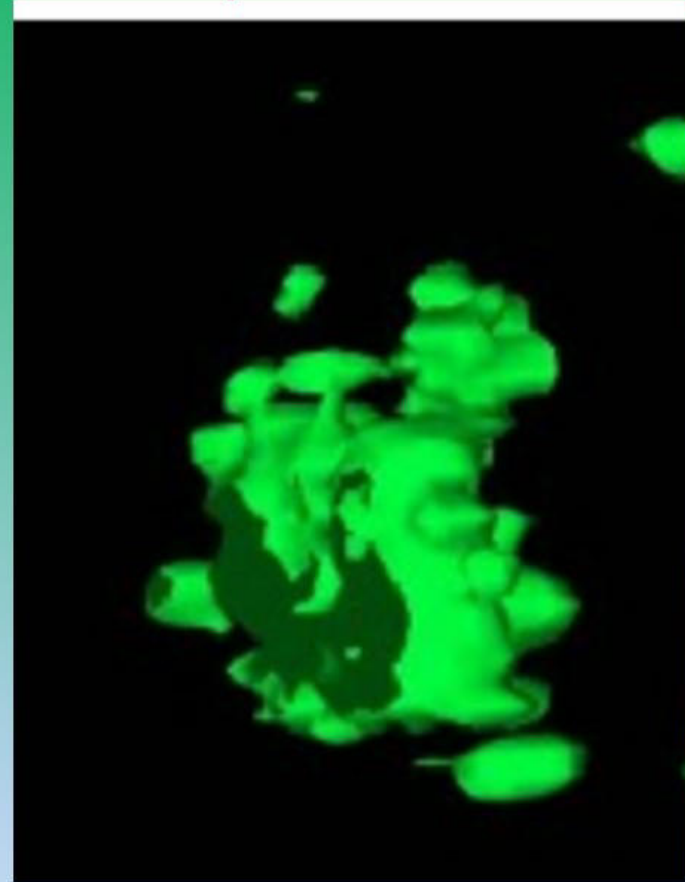
1000 consecutive Plaques Examined

By

Alan B. MacDonald, MD,
Fellow, College of American Pathologists

3 Dimension Reconstruction of Plaque

**Plaque of Alzheimer's
Disease:
A Mix of
Solid and Empty spaces**



Amyloid

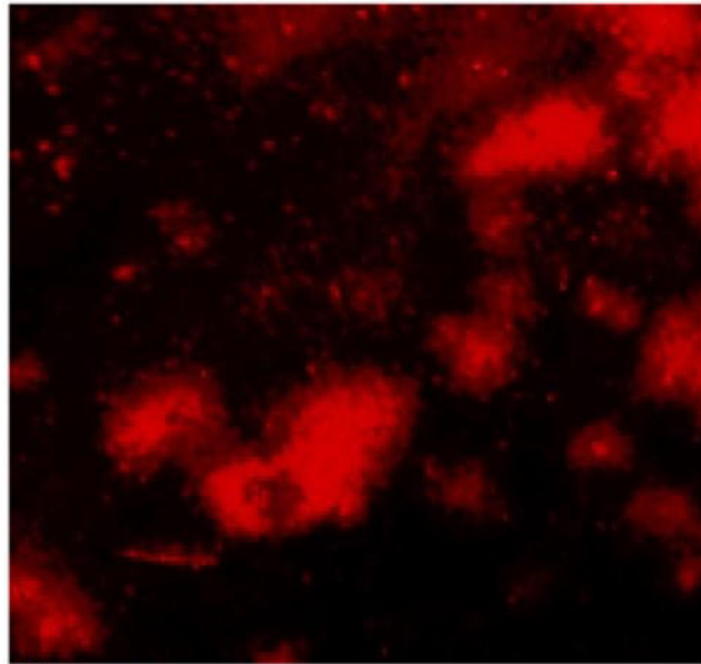


Figure 6F

Hippocampus. Congo Red stain only (American Master Tech Product STCRE 00) Amyloid color red

Biofilm

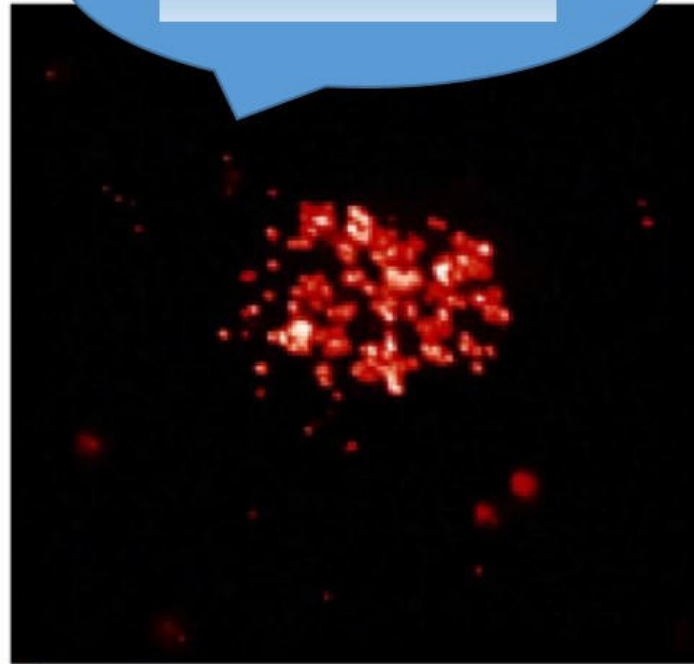


Figure 6G

Hippocampus, Fluorescence In Situ Hybridization only (FISH) for *Borrelia* specific DNA/mRNA (white and red). A biofilm-like community of *Borrelia* microbes (granular *Borrelia*) in high density, showing a rounded contour. Rounded Amyloid plaques are very similar with rounded image profiles and in plaque diameters.
Probe: TCA GCC ATA AAT GCT TCC AGA AAT AAT

Biofilm

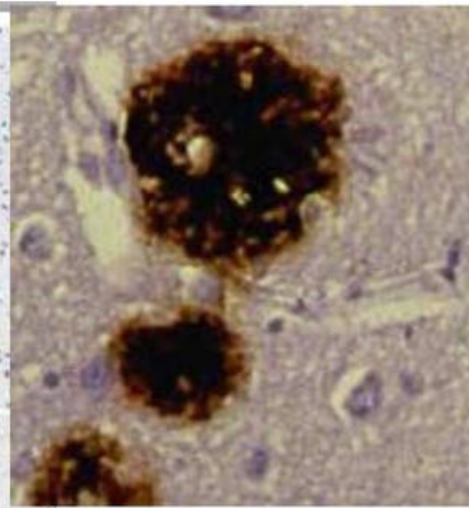
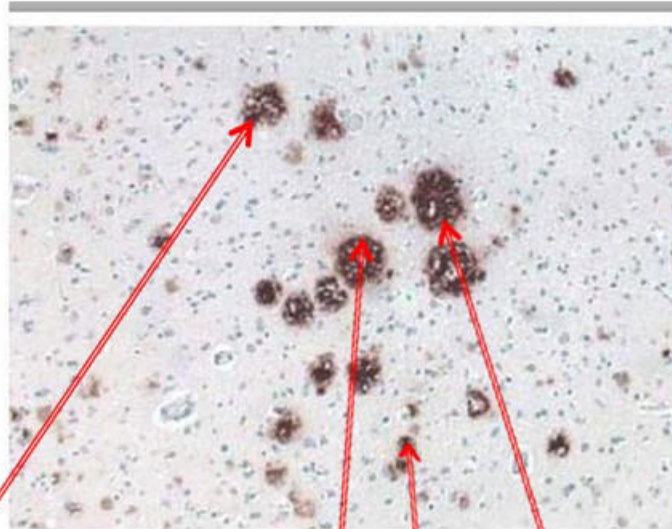


Figure 6H

Hippocampus. Same figure legend as for figure 6G

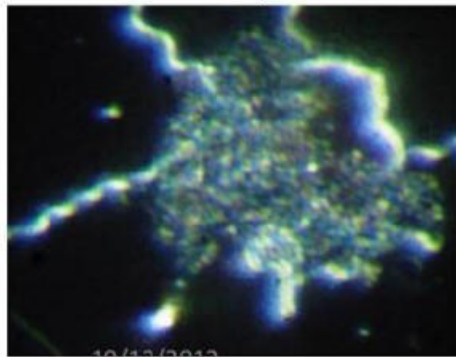


Dr Alois Alzheimer – with Morphing of Alzheimer plaques on his portrait

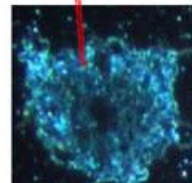


Alzheimer plaques - google

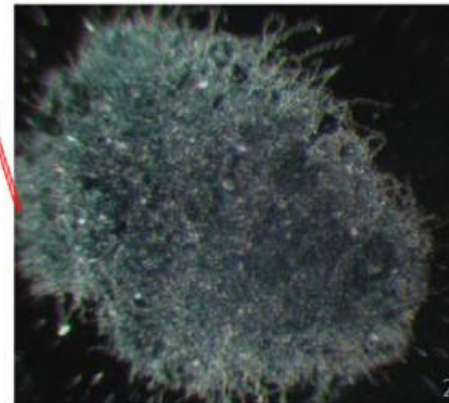
Borrelia Biofilm Units



10/17/2012
9/7/2015



Alzheimer Plaque resemble Biofilms of borrelia burgdorferi
Molecular Biology Researcher Dr. Dargatzis



Experimental Methods:

1. Autopsy confirmed diagnosis – Alzheimer's CERAD criteria, Immunostains B1-42,pTAU
2. Recut Glass slides – Hippocampus
3. Molecular Beacon Dna Probes :
In situ DNA Hybridization [FISH method]
4. Amyloid Stains performed (CR or Tt stain)
5. Control slides run in parallel
6. Photomicrographs : Locked Field of View

Amyloid Plaque [A] / Borrelia by Dna probe [B]

A



Alzheimer's Disease Autopsy Brain
Congo Red Stain for Amyloid
Note:
Orange to Red and White to Green color
in plaque
under White Light Illumination

B



Alzheimer's Disease Autopsy Brain
Amyloid plaque
which has been Double stained
with
Borrelia Miyamotoi Molecular Beacon DNA
probe
(probe when bound to target ***Miyamotoi*** DNA
emits a Red Color (Cy5 fluor label)
under 640 nm Illumination

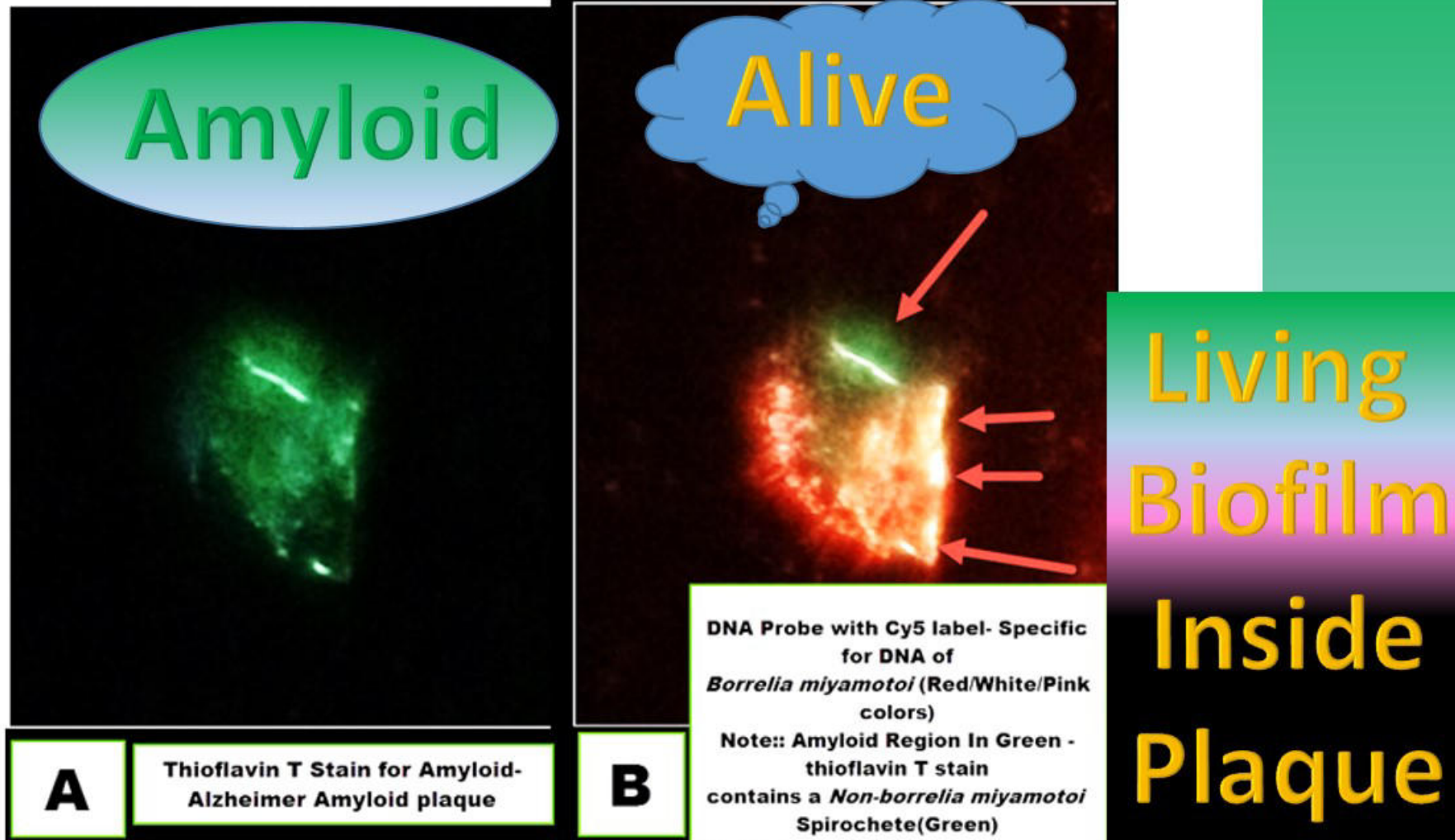
Conclusion: ***Borrelia Miyamotoi*** DNA (Miya Flagellin B) is abundant INSIDE of An Amyloid Plaque
in Alzheimer's Disease- based on highly specific Fluorescence In Situ DNA Hybridization{ FISH
method}
with Molecular Beacon DNA probe for ***Borrelia Miyamotoi*** Flagellin B DNA [in image B]

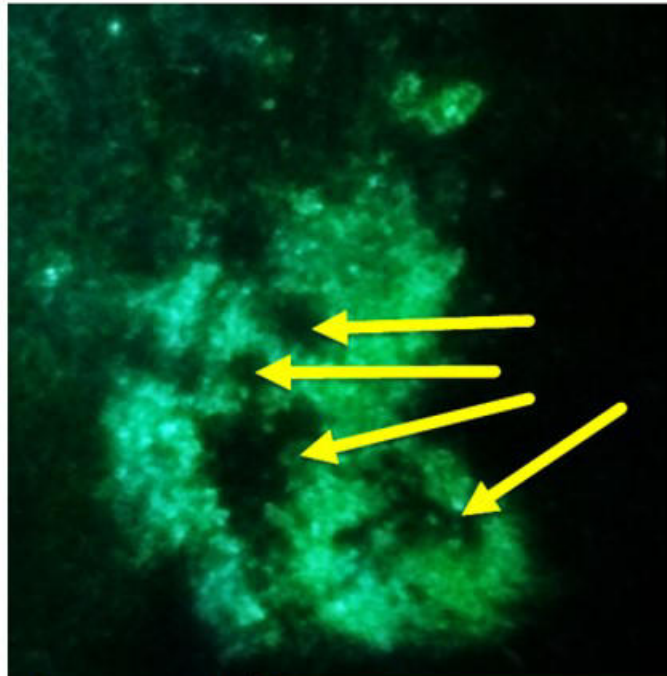
Image by Alan B. MacDonald MD, FCAP : Copyright: Year 2015

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- Green color -
Amyloid -
Thioflavin T stain

Green color





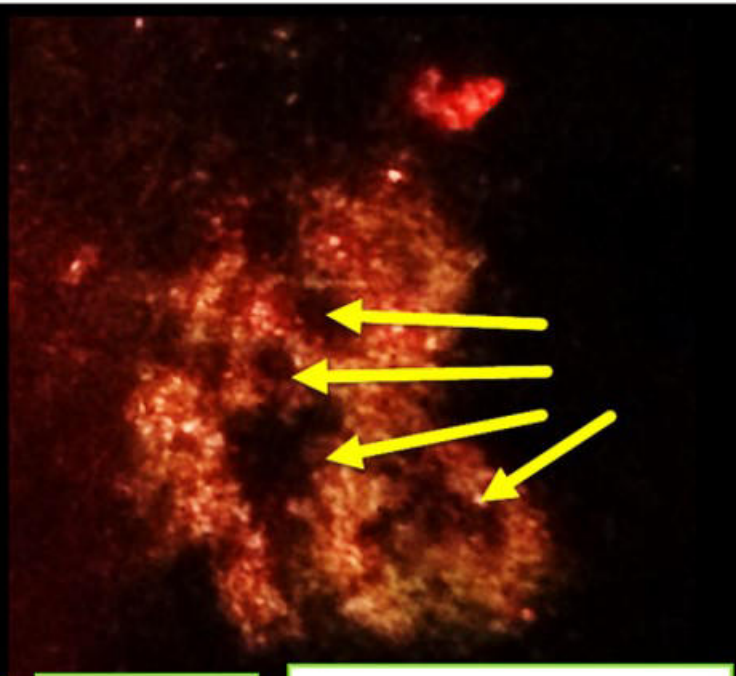
A

Alzheimer Amyloid Plaque
Stained with Thioflavin T Stain
Amyloid is bright Green Color

Note:

Voids inside of the Green plaque
do not stain for Amyloid

These are present in Image [A] and [B]
and are characteristic of the "empty
spaces" inside of Amyloid Alzheimer's
Plaques



B

Alzheimer Amyloid Plaque stained with
Borrelia Miyamotoi DNA Probe -Cy5
(red color)

Note:

Voids inside of the Plaque are again
demonstrated, as in figure [A]

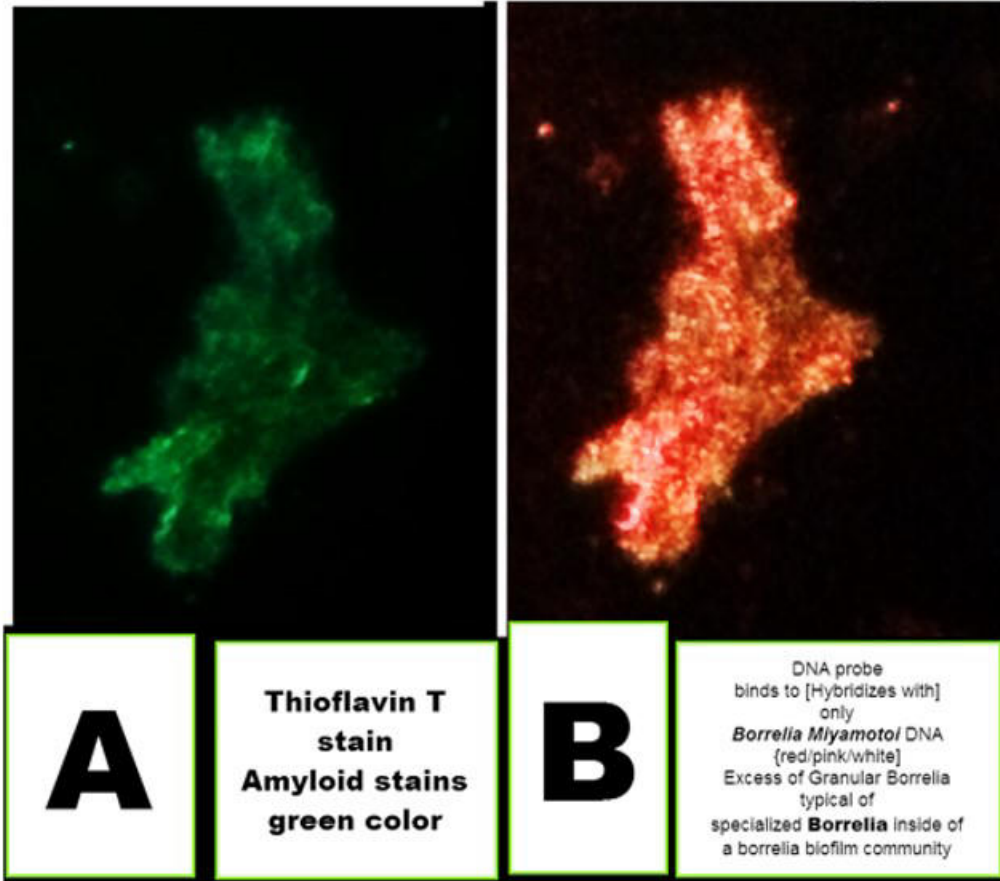
Multiple DNA Hybridizing Granular
points

are present throughout the plaque.
These are not Amyloid [as in A]
but rather are Granular *borrelia* forms
which are very characteristic of the
closely packed specialized *Borrelia*
miyamotoi forms in a biofilm
community.

-

Gallery of Amyloid Plaques and indwelling *Borrelia* Biofilm communities (3)

Note: No Water Channels seen in this plane of View: [A] [B]





A

**Amyloid Alzheimer Plaque
Thioflavin T Amyloid Stain
(Green Color)**

**Note:: Birght Green Dot like
structures; closely spaced
inside of the
Rounded Plaque of
Green Staining Amyloid**



B

**Biofilm of *Borrelia*
showing Closely spaced
Dot-like Structures which
contain *Borrelia* DNA
(Miyamotoi borrelia DNA
Beacon
Probe is positive
with birght signals in the
Granular *Borrelia* forms
and less birght BUT
well defined *Borrelia*
miyamotoi DNa
free and not membrane bound
in
the Extracellular MATRIX OF
THE BIOFILM COMMUNITY.**

Amyloid Stain {A} DNA Probe {B}

Essential: Teachable Moment: *Borrelia* Biofilms - Structure

- 1. **Specialized *Borrelia* : *Inside*** the Biofilm COMMUNITY

Granular *Borrelia*-



- A. **Small , dot like Profiles:** [NO Spirals]
- B. LIVING legitimate *Borrelia* forms – “GRANULAR”
- C. “**Membrane Bound**” DNA containing life forms
- D. DNA and RNA – Bright Signal DNA by Probes
- E. Granular *Borrelia* **Growth**- Increase in number over time
- F. **Protected by Matrix of biofilm** -Gel like investment

Essential: Biofilm Borrelia Communities

- **Matrix of biofilm-** protective role –

2. Matrix **“Surround”**: for Living Biofilm Community



Extracellular - i.e. separate from " Membrane Bound"

Viscous, Thick

Composition: **Extracellular DNA** , Extracellular Proteins etc.

Origin: **Remnants of Once Living**, but now Dead microbes

Water Channels: Empty spaces, in a Network:

Nutrition Conduits, Waste (sewer) Conduits

Supports, Protects, Insulates the Community

