

## NorVect Conference 2015 – poster session

### Title: Silent Babesia Infections in Norway

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**Aim:** The aim of the present project is to show that it is quite easy to detect *Babesia* infections in humans. In my opinion, the presence of this parasite is often overlooked by microscopists. The project is a spin-off of general studies involving simple microscopical methods for detecting tick-borne infections present in human blood.

**Method:** *Babesia* which is a tiny eukaryote apicomplexan organism is simply detected by microscopy, in principle by the same staining methods as for the near related malaria or *Toxoplasma*. By slight modifications of the Giemsa procedure (see 1 and 6) this parasites will appear crisp and well stained. The use of hypotonic treatment with sodium citrate solutions in similar manner as used for lymphocytes in human cytogenetic is rewarding. Morphological details appear that is seldom observed by other means.

**Results:** We have found that *Babesia* parasites (1) often occur together with L-forms of *Borrelia* (2) in Norwegians, *even in persons feeling healthy*. This is contrary to official claims. Silent infections not causing immediate symptoms are widespread and in fact well known in humans (3, 4, 5,). It is assumed that extreme complicated events far from yet understood involving both cyto-genetic mechanisms and molecular biology are involved. Especially the ring stage and the Maltese cross, appear with new details. In some hypotonic expanded RBC's each of its four nuclei are arranged in a geometric figure with principal similarities to the tetrad stage of vascular plants indicating that some kind of meiosis is involved. Infected blood cells normally lacking its human nucleus occasionally complete a cytokinesis after infection. This is possibly due to the acquired necessary information provided by its new invading partner. The accumulated experiences gained for over 100 years by staining blood smears with Giemsa techniques (6) exclude the arguments that recently have been presented by others that the images shown here do represent not *Babesia* and thus have other explanations.

**Conclusion:** We conclude that *Babesia* infections most likely are found in a substantial fraction of the Norwegian population. Our experience is limited to what could be called pilot studies. As our aims are to improve microscopical methods for detecting blood infections, we urge the medical societies to perform wider studies regarding disease development.

(1) M. M. Laane og I. Mysterud. 2013. *Babesia*, vanlig hos antatte borreliosepasienter? Biolog 31(2) pp. 23-25.

(2) <http://www.counsellingme.com/microscopy/MeetingMicroscopy.html>

(3) <http://www.newvision.co.ug/mobile/Detail.aspx?NewsID=1431&CatID=10>

silent killer babies

(4) <http://labtestsonline.org/understanding/conditions/std/>

silent sexual transmitted diseases

(5) [http://en.m.wikipedia.org/wiki/Mycobacterium\\_leprae](http://en.m.wikipedia.org/wiki/Mycobacterium_leprae)

*Mycobacterium leprae*, exstreme slow replication rate

(6) Conn, H.J. 1951. Biological stains. biological stain commission. Ed.6. Geneva, N.Y. 367 pp. 1951

Note: The classic Giemsa stain and its derivatives contain complex mixtures of Azure A or B sometimes both and also Methylene violet, together with Eosin, Methyl alcohol and

Glycerol. If made from powder the solution ripens in a manner not fully understood and chemical changes occur, but experience gained over more than 100 years together with standardisation of products have resulted in its unique abilities to stain blood smears with details related to the organisms life activities.

- (A) Giemsa G (1904 Eine Vereinfachung und Vervollkommnung meiner Methylenblau-Eosin-Färbemethode zur Erzielung der Romanowsky-Nocht'schen Chromatinfärbung. *Centralblatt für Bakteriologie I Abteilung* 32, 307–313.
- (B) Shapiro HM, Mandy F (September 2007). "Cytometry in malaria: moving beyond Giemsa". *Cytometry. Part A : the journal of the International Society for Analytical Cytology* 71 (9): 643–5. [doi:10.1002/cyto.a.20453](https://doi.org/10.1002/cyto.a.20453). [PMID 17712779](https://pubmed.ncbi.nlm.nih.gov/17712779/).
- (C) Damsgaard TE, Olesen AB, Sørensen FB, Thestrup-Pedersen K, Schiøtz PO (April 1997). "[Mast cells and atopic dermatitis. Stereological quantification of mast cells in atopic dermatitis and normal human skin](#)". *Arch. Dermatol. Res.* 289(5): 256–60. [doi:10.1007/s004030050189](https://doi.org/10.1007/s004030050189). [PMID 9164634](https://pubmed.ncbi.nlm.nih.gov/9164634/).
- (D) "[4.2.2.2. Giemsa stain](#)". [impact-malaria.com](http://impact-malaria.com).