

# Compendium of chlamydia diagnostic using westernblot

## Content:

- Short introduction of AID GmbH
- Bacteriology and structure of Chlamydia
- Chlamydia infection and diagnostic
- Conclusion

## Company description:

- Founded 1989 in Straßberg, South-West Germany
- Development and production of immunoblots for the detection of various infection and autoimmune disease
- Development and production of molecular biology products for detection of human polymorphisms, pathogens and their antibiotic resistance.
- Development and production of T-cell assay's (EliSpot)
- Image Analyzer for automated evaluation and documentation of our products

## Bacteriology:

- Small obligat intracellular bacterium
- 2 forms: elementary body (EB) and reticulate body (RB)
- EB are the infectious form (outside the cells)
- Genus Chlamydia includes 3 humanpathogen species, *C. trachomatis*, *C. psittaci* and *Chlamydophila pneumoniae*
- All Chlamydia carry a common group antigen a lipopolysaccharide
- Species-specific determinants are on Major Outer Membrane Proteins (MOMPS) for *trachomatis* and other OMPS for *Chlamydophila pneumoniae*

## Structure:

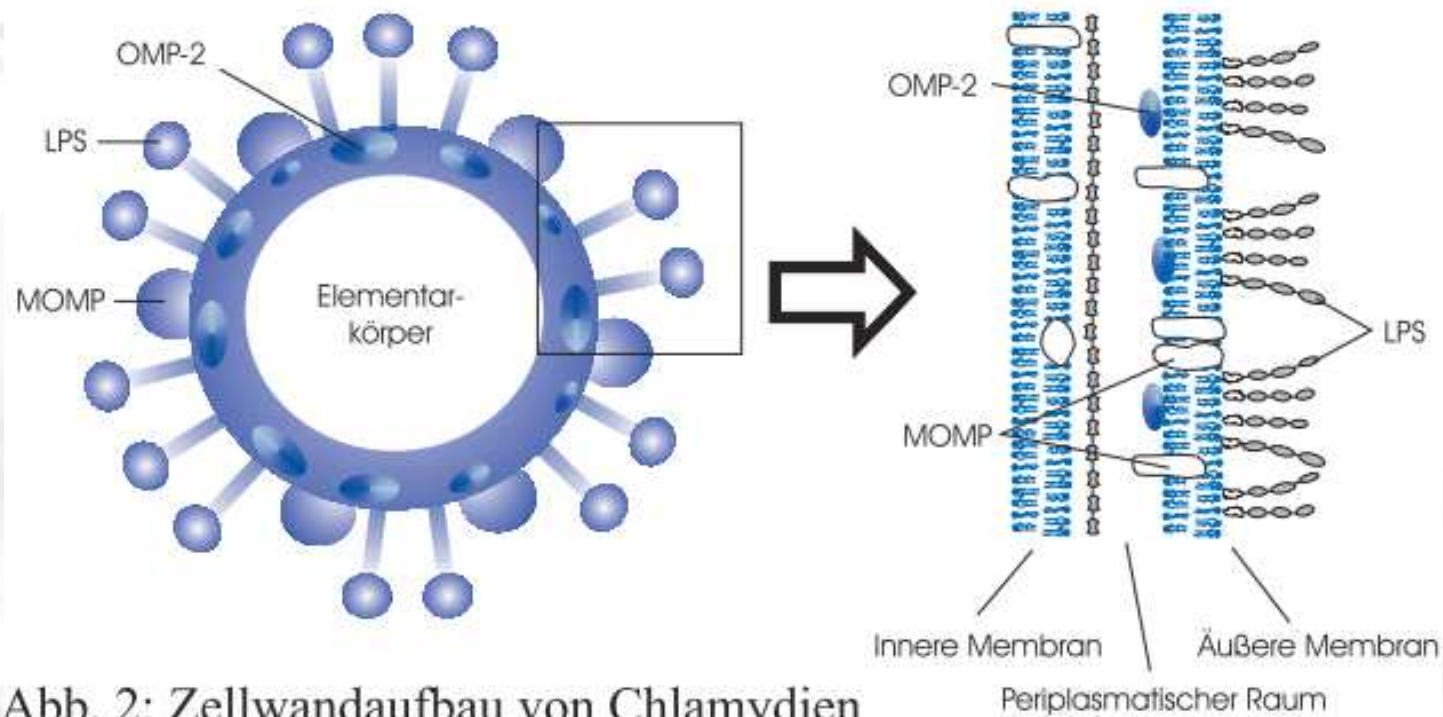
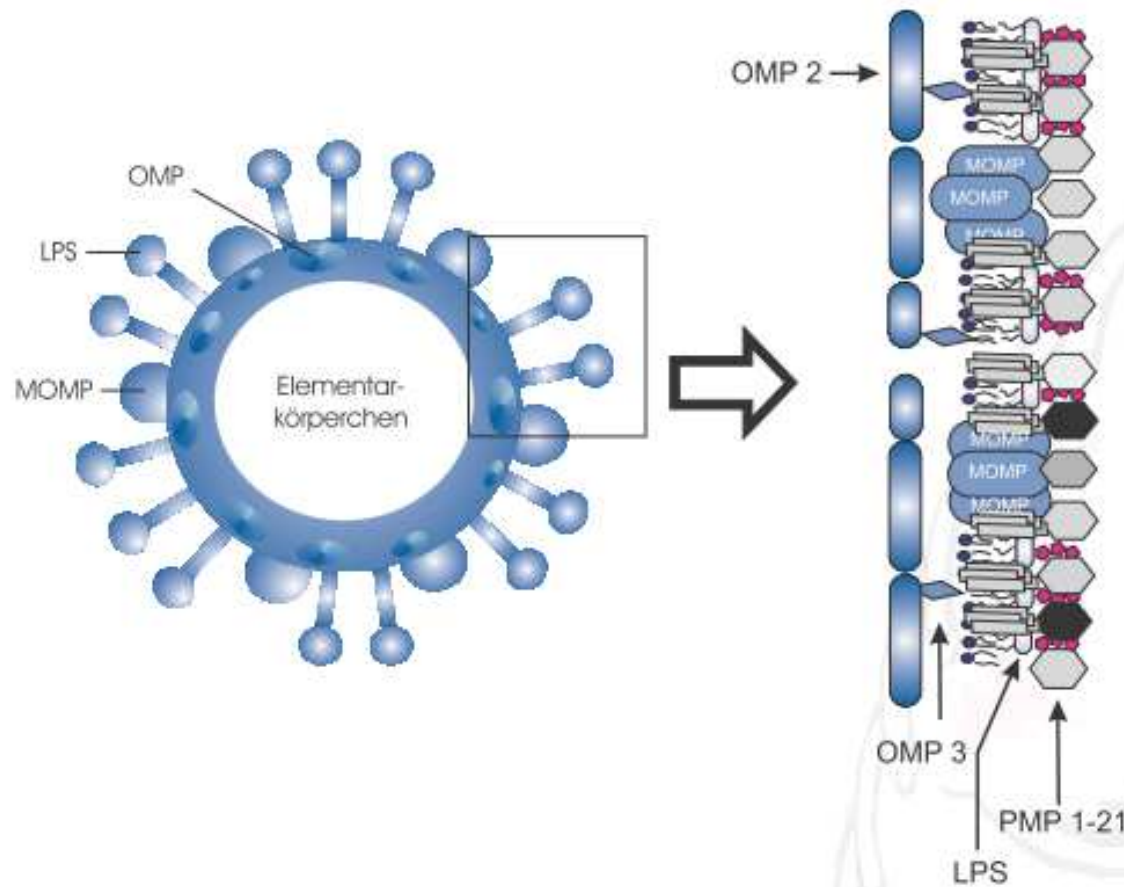
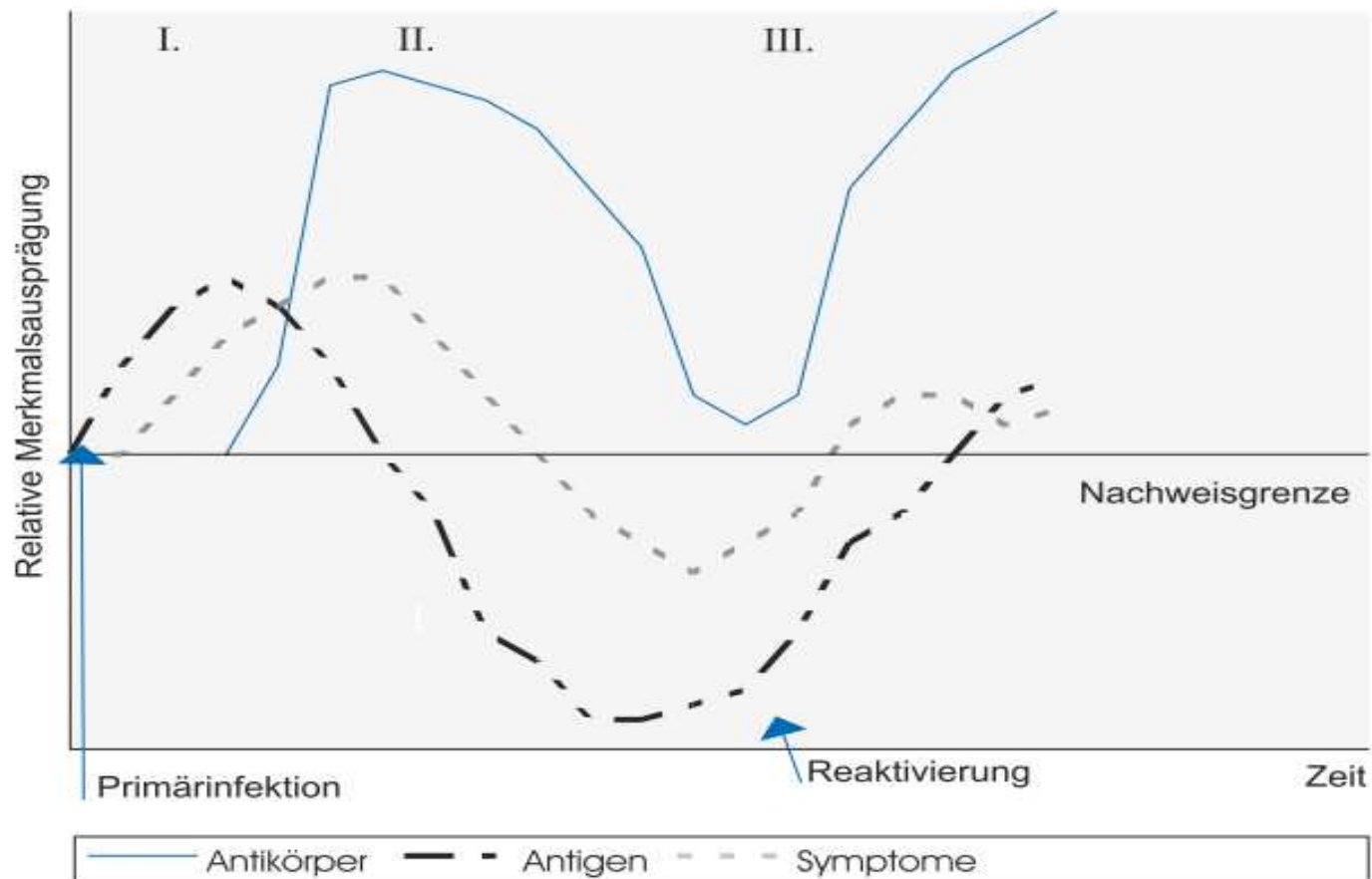


Abb. 2: Zellwandaufbau von Chlamydien



*Chlamydia pneumoniae*

## Process of infection:



## Diagnostic of Chlamydia infection:

1. Detection of the antigen  
Early phase of infection directly with PCR  
Pregnancy Screening
2. Detection of antibodies  
while infection  
late phase and especially in chronically state

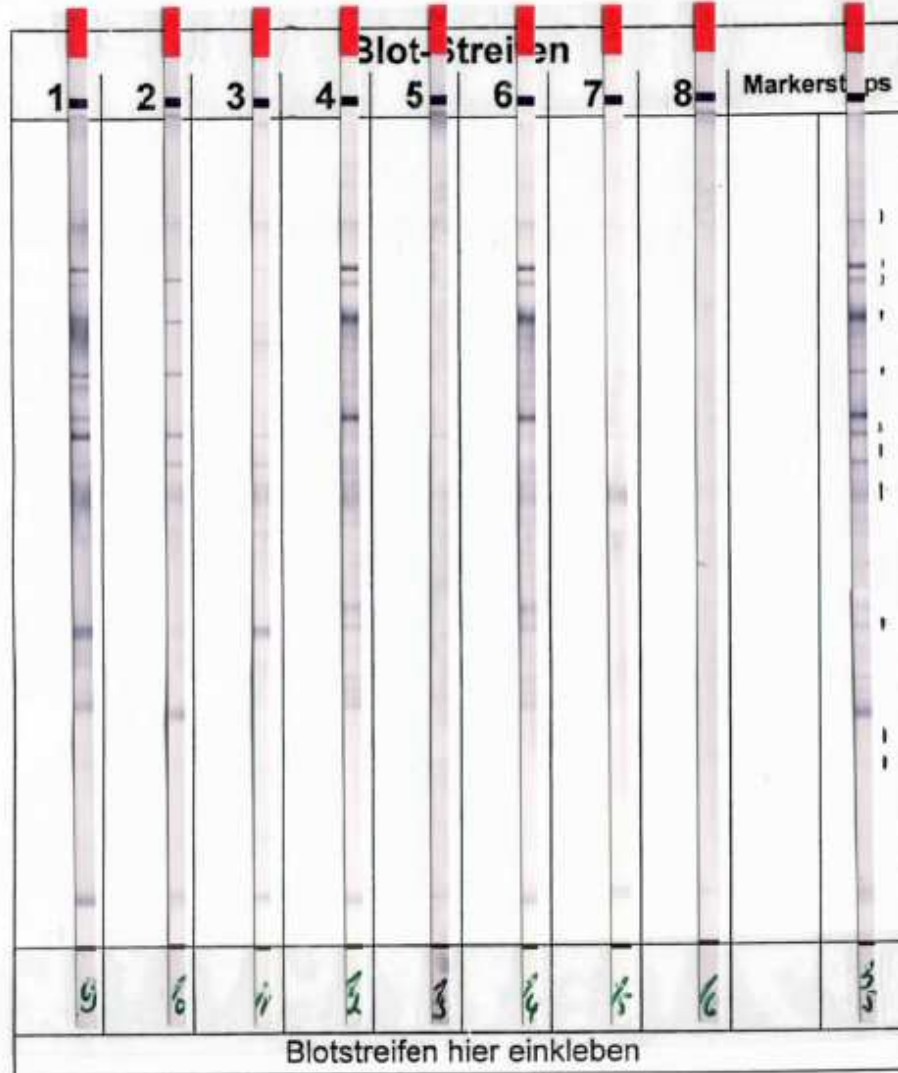


## Serological Testsystems:

- MIF (micro-immunfluorescence test)  
Goldstandard but not easy to interpret and not for high through-put
- ELISA  
Easy to perform but less sensitivity and specificity
- Immunoblot  
High sensitivity and specificity  
Automatisation for high through-put and documentation available  
Band-pattern allows a discrimination between acute and chronic state

## Chlamydophila pneumoniae

- Common cause of pneumonia around the world especially on immunosuppressed patients
- Frequency of infection between 50 – 70 %
- Long persistence of antibodies



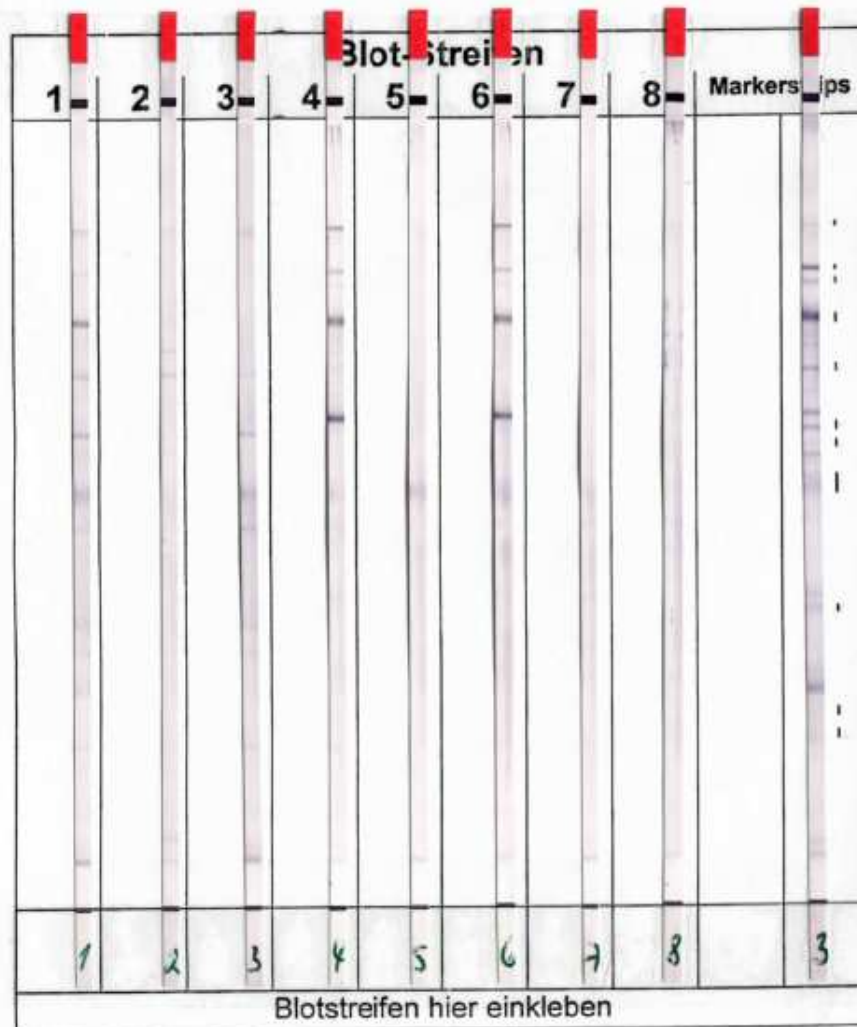
*Chlamydomonas pneumoniae*-specific bands

35 kD, MOMP (39 kD), 48 kD,  
54 kD (OMP 2)  
and other OMP'S 90 kD, 92 kD,  
98 kD

IgG:

If 2 specific bands are marked,  
it is a possibly positive IgG  
state.

If 3 or more specific bands are  
marked, it is a positive IgG  
state.



### *Chlamydomphila pneumoniae*-specific bands

35 kD, MOMP (39 kD), 48 kD,  
 54 kD (OMP 2)  
 and other OMP'S 90 kD, 92 kD,  
 98 kD

### IgM/IgA:

If at least 2 specific bands are marked, it is a positive state.

## Interpretation:

- 48 kD band appear at early phase of infection
- OMP2 (54 kD) is highly specific for *Chlamydomphila pneumoniae* and appear while infection after 48 kD band
- In late phase of infection other OMP band (reagion around 90 kD) appear together with OMP2
- IgA reaction is mainly weak
- High titer of *Chlamydia trachomatis* IgG antibody weakly react with MOMP 39 kD band

## Performance data:

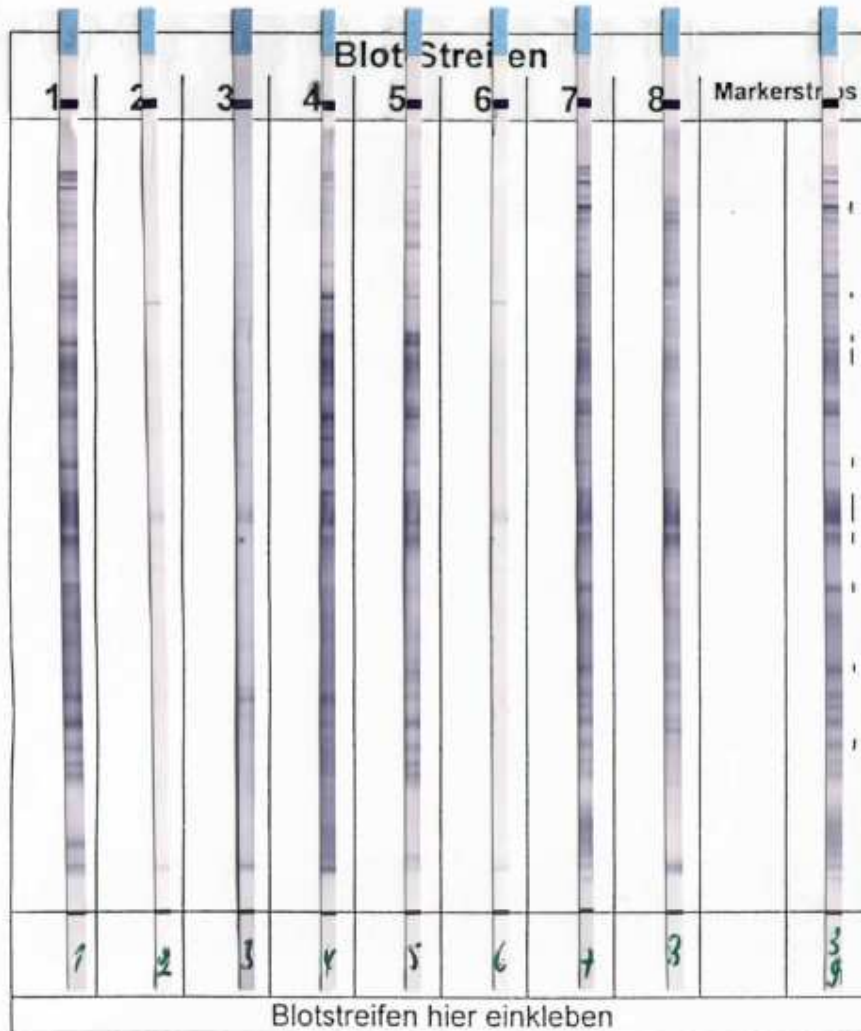
	Vergleichsmethode (MIF)	GenID Immunoblot
IgG positiv	25	23
IgA positiv	18	17
IgM positiv	5	3
$\Sigma$	48	48

Healthy donors	positiv	negativ
IgG	28	72
IgA	12	88
IgM	0	100

Specificity      IgG 95 %, IgA 98 %  
Sensitivity      IgG 91 %, IgA 95 %

## Chlamydia trachomatis:

- Most cases of STD caused by Chlamydia trachomatis
- Chronic infection of Chlamydia develop reactive arthritis and infertility



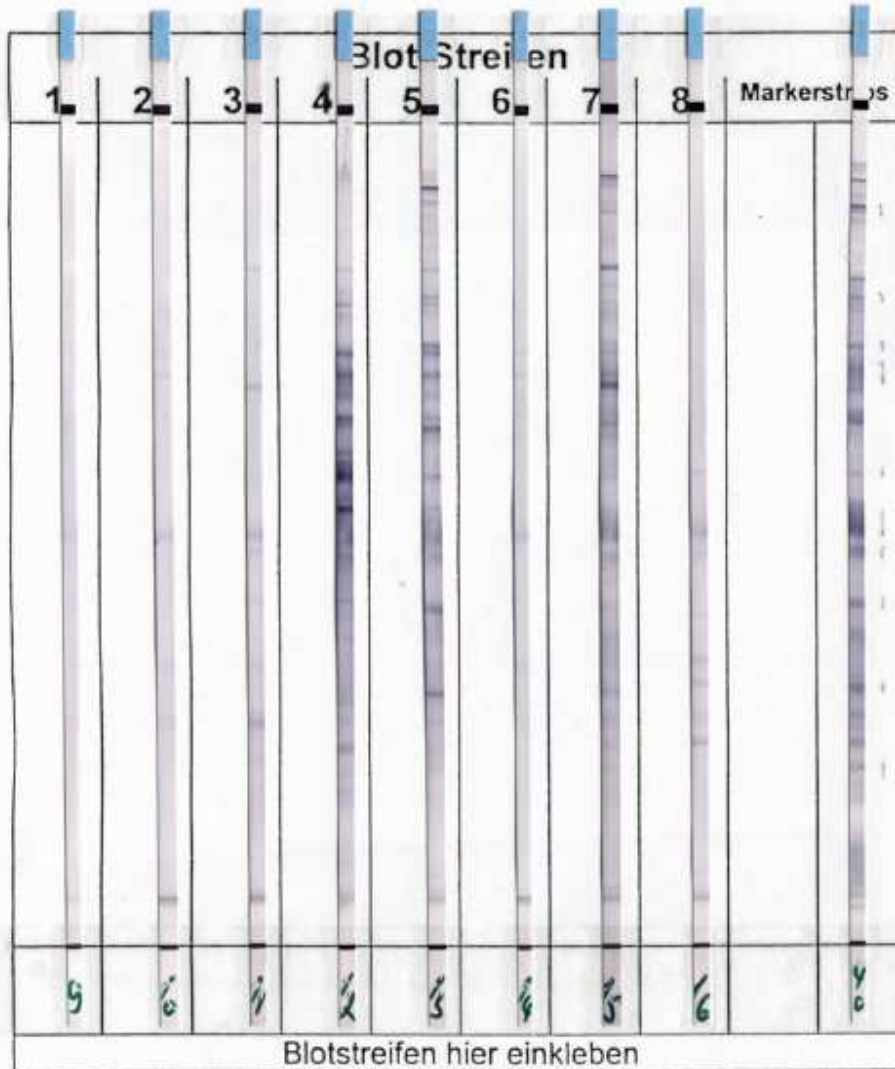
## Chlamydia trachomatis-specific bands

MOMP 1 (40 kD), MOMP 1' (38 kD), 45 kD, 29 kD, 80 kD and at 57 kD OMP2.

### IgG:

It is a possibly positive state if one specific band is detected with a significant marked MOMP 1





## Chlamydia trachomatis-specific bands

MOMP 1 (40 kD), MOMP 1' (38 kD),  
 45 kD, 29 kD, 80 kD and at 57 kD OMP2.

### IgA:

It is a possibly positive state if MOMP 1  
 alone is marked significant.

It is a positive state if MOMP 1 and one  
 specific band is marked significant.

## Interpretation:

- MOMP (40 kD) and OMP2 (57 kD) band are highly specific for *Chlamydia trachomatis*
- Broad band pattern (especially OMP2 and HSP) in IgA together with IgG were observed in chronic state
- Monitoring of infection after treatment
- No crossreactivity to *Chlamydothila pneumoniae*

## Performance data:

This kit is designed to verify chronic inflammatory diseases (like reactive arthritis and infertility) caused by previous infection with *Chlamydia trachomatis*.

	Vergleichsmethode (MIF, ELISA)	GenID Immunoblot
IgG positiv	53	49
IgA positiv	24	24
Negativ	70	70
$\Sigma$	147	147

Spezifität 100 %

Sensitivität für IgG 92 %, für IgA 100 %

## Conclusion:

- Serological tests are indicated for monitoring the infection as well as in chronic state of infection
- Immunoblot is more specific and sensitive than ELISA
- Immunoblot offer more differentiated picture of immunresponse by evaluating the band-pattern
- Automatisaton and documentation of the results for high through-put and monitoring of infection



**Thank you for  
your attention**