



Results:

CD4+CD28null - T cells in COPD Patients receiving a Lung-Transplantation

Chronic obstructive pulmonary disease (COPD)

Worldwide 600 million people suffer from COPD

200 000 – 300 000 people die every year in Europe of COPD

COPD is the third leading cause of death in the U.S. and the economic burden of COPD in the U.S. in 2007 was \$42.6 billion in health care costs

Predictions show that in 2020 COPD will kill 6 million people every year and will become the third leading cause of death worldwide.



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ORIGINAL ARTICLE

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T cell senescence and contraction of T cell repertoire diversity in patients with chronic obstructive pulmonary disease

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Several studies were able to show a strong correlation between tobacco abuse and the development of COPD but exact descriptions of the pathogenetic mechanisms remain vague.

Studies describing the role of CD8+CD28null lead to the hypothesis that a specific chronic inflammatory reaction of adaptive immune system is occurring in patients with COPD

CD4+ T cells under chronic stress undergo multiple phenotypic and functional changes. One of the most described Phenotypical changes is the loss of CD28. This was already described in diabetes mellitus, rheumatoid arthritis, multiple sclerosis, Wegener's granulomatosis and Bekhterev syndrome.

[Clin Exp Immunol](#). 2009 Mar;155(3):466-75.

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[Lambers C](#), [Hacker S](#), [Posch M](#), [Hoetzenecker K](#), [Pollreisz A](#), [Lichtenauer M](#), [Klepetko W](#), [Ankersmit HJ](#).

Source

Department of Pulmonary Medicine, Medical University of Vienna, Vienna, Austria.

[COPD](#). 2006 Dec;3(4):179-87.

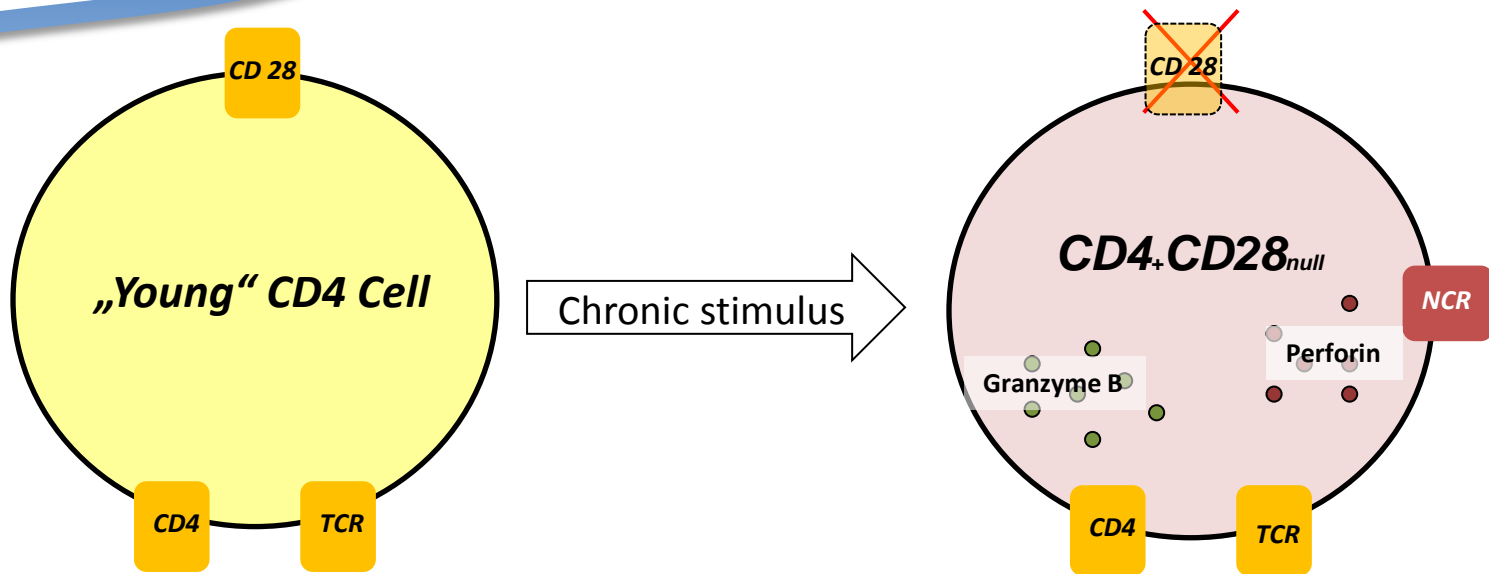
Increased airway granzyme b and perforin in current and ex-smoking COPD subjects.

[Hodge S](#), [Hodge G](#), [Nairn J](#), [Holmes M](#), [Reynolds PN](#).

Source

Department of Thoracic Medicine, Royal Adelaide Hospital and Lung Research Laboratory, Hanson Institute, Adelaide, South Australia. sandy.hodge@imvs.sa.gov.au

Abstract



Several of these functional features in CD4+CD28null T-cells are reminiscent of NK cells. Like NK cells, CD4+CD28null T cells are cytotoxic and can express NK cell receptors such as CD94 and CD158.

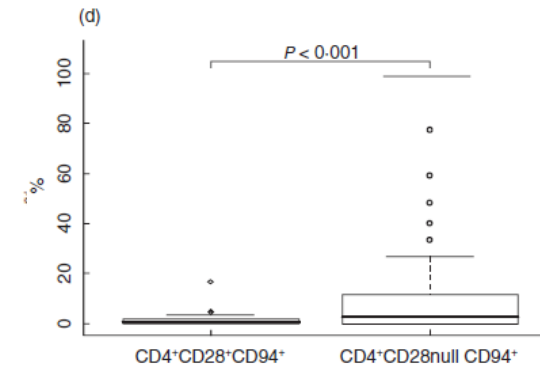
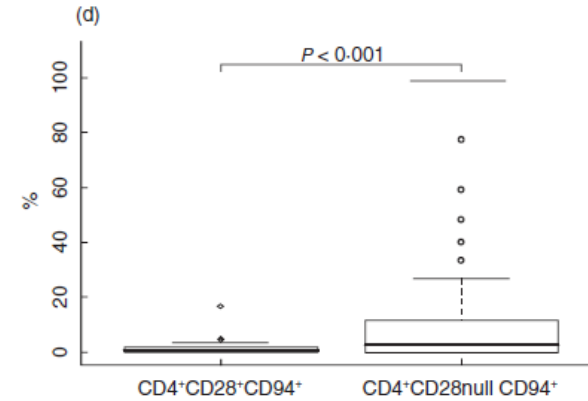
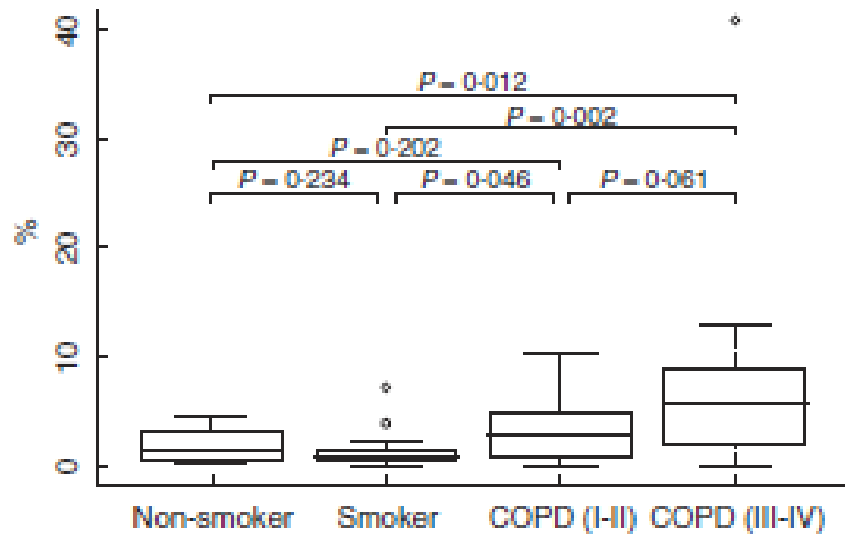
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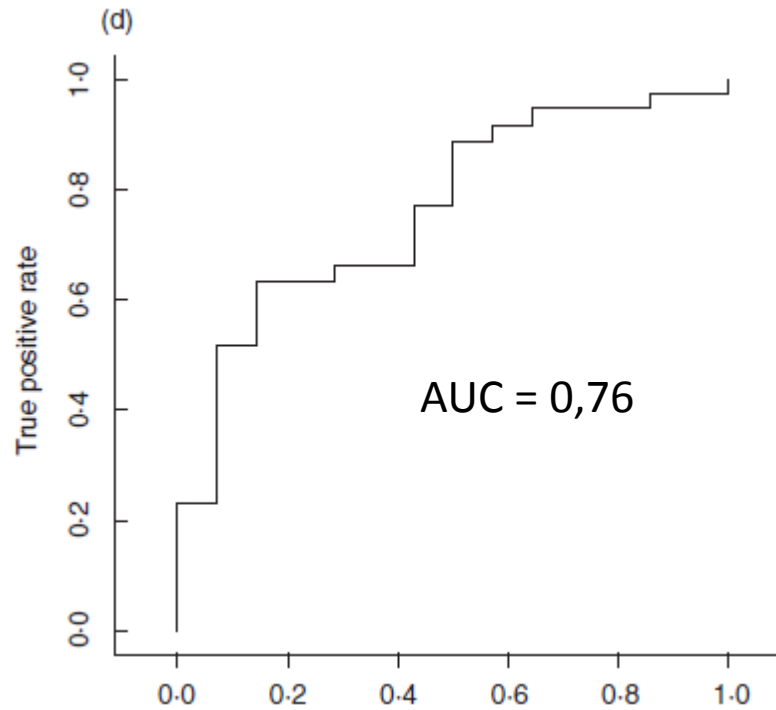
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Patients with COPD show a profound change in the representation of functionally and phenotypically distinct subsets of CD4+ T cells.

The basic mechanisms causing replacement of other CD4+ T cells by CD4+CD28null clonotypes are incompletely understood.

White blood cells derived from COPD GOLD I–II secreted augmented levels of IFN- γ and TNF- α – cytokines that are known to increase macrophage and dendritic cell activity – compared with controls and severe COPD (GOLD III–IV), and causing tissue destruction

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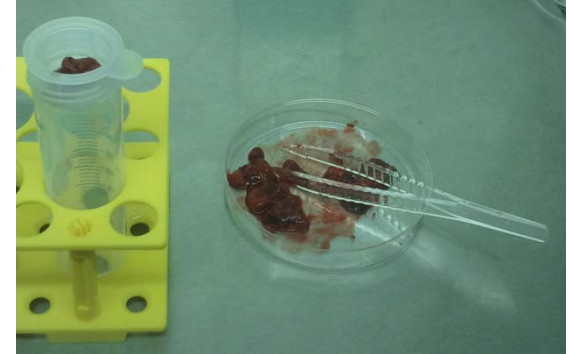
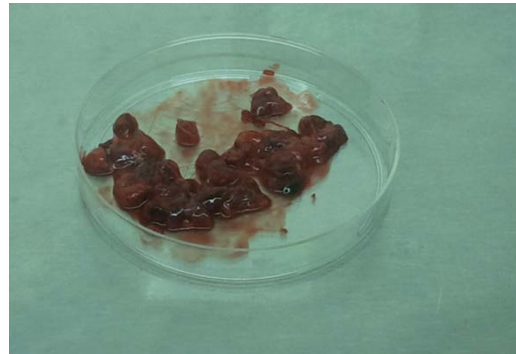
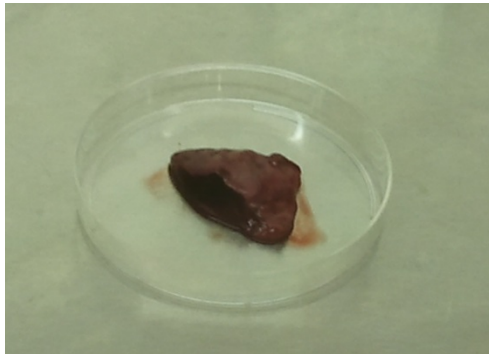
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Methods

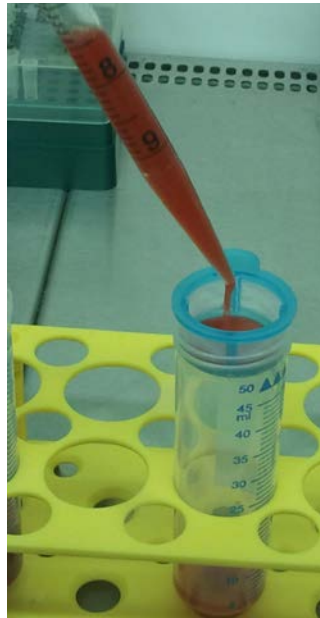
Flow cytometry – Blood
CD4+ cells separated from lung tissue

Proliferation Assay - incubated with: **Elastin soluble**
Elastin peptide
Kollagen peptide

Lung Homogenization

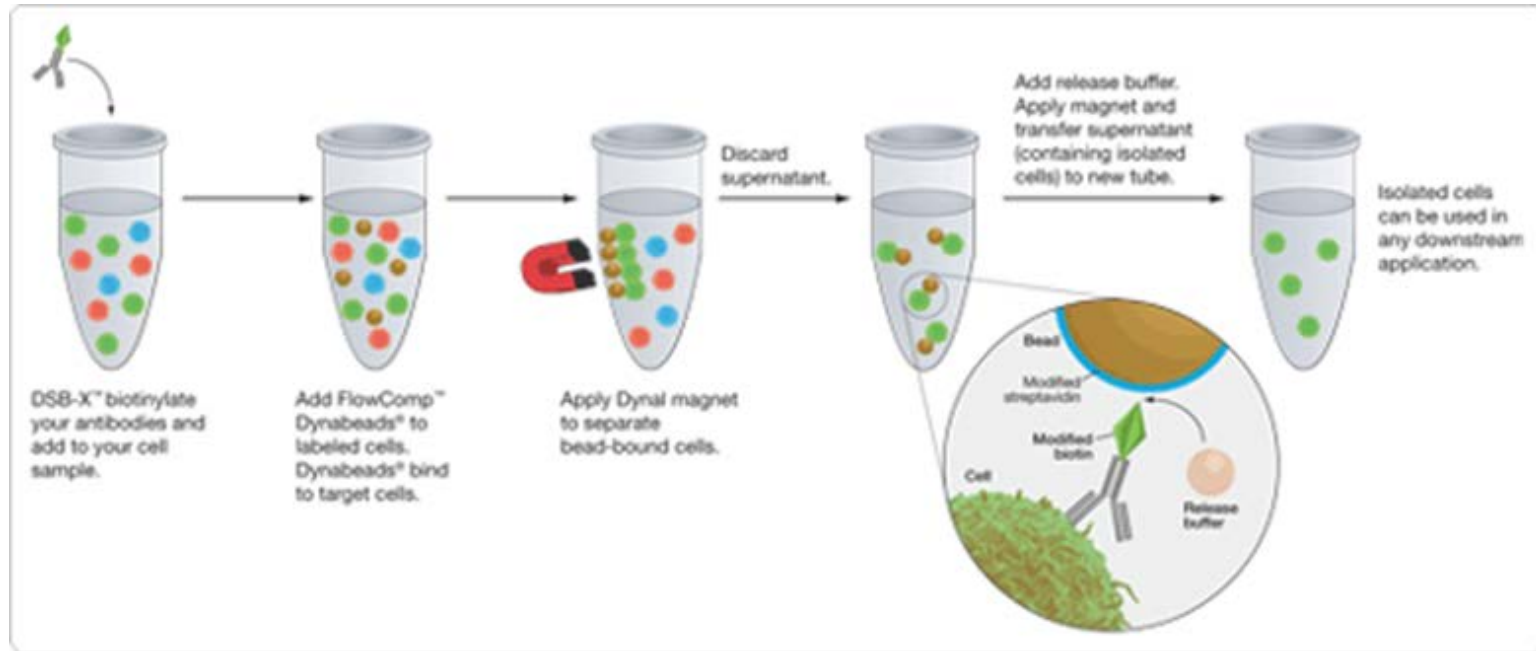


Lung Homogenization



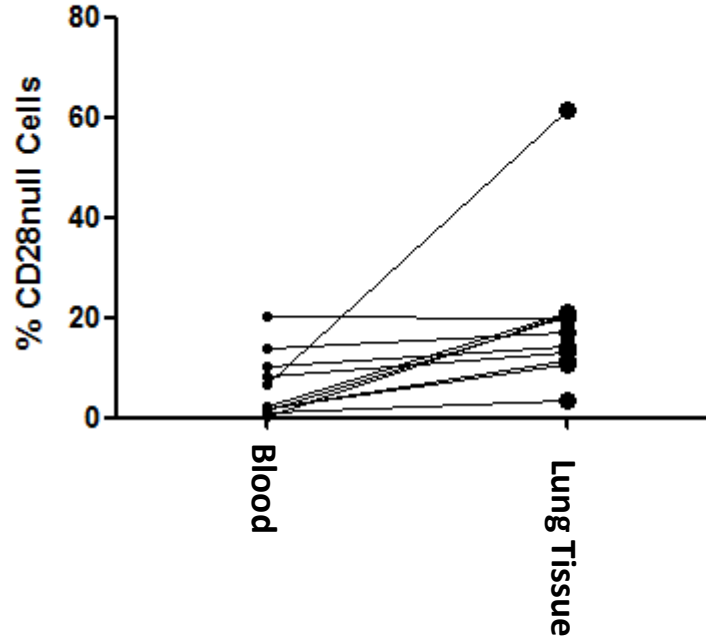
Cellcounter: 2-10 Mill/ml

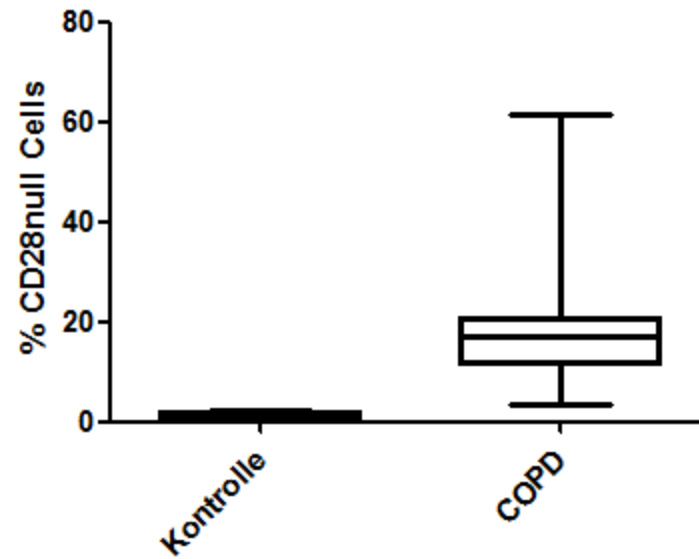
Dynabeads separation



Cellcounter: 1 Mill/ml

CD28null Cells: Blood vs. Lung tissue

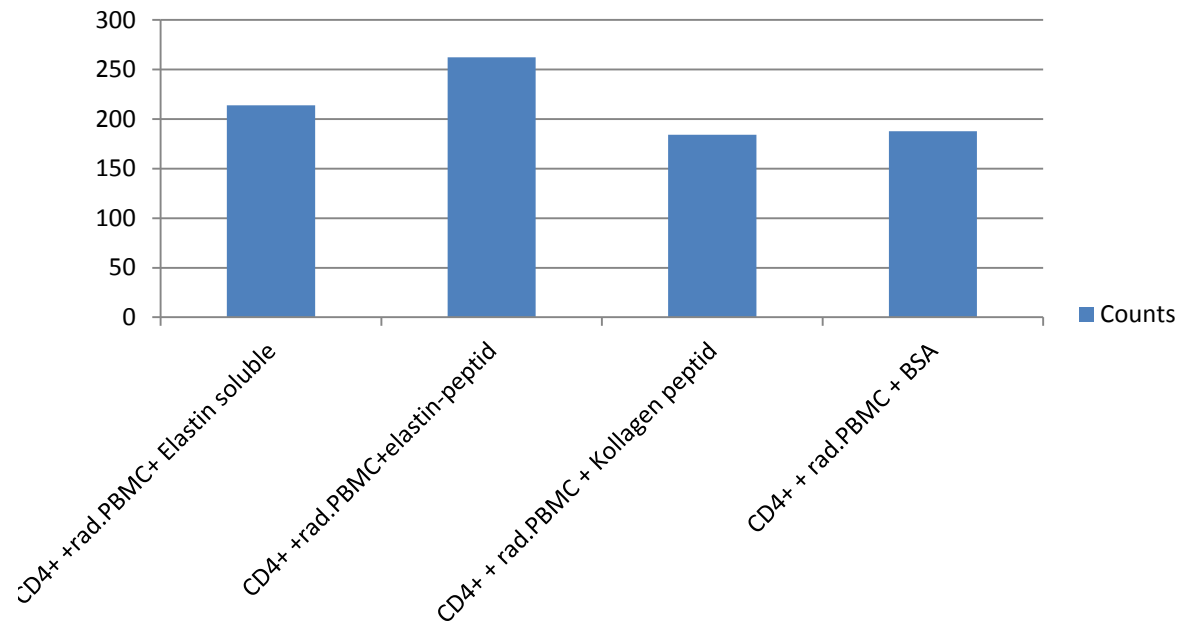






Proliferation Assay

Counts





Christian
Doppler
Laboratory

for
Cardiac and Thoracic
Diagnosis & Regeneration



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UNIVERSITÄT
WIEN

Psoriasin (S100A7) is a major *Escherichia coli*-cidal factor of the female genital tract

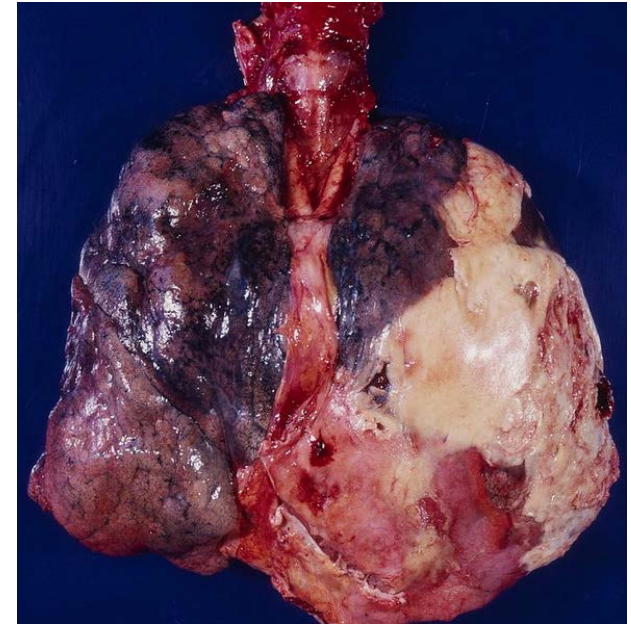
M Mildner¹, M Stichenwirth¹, A Abtin¹, L Eckhart¹, C Sam², R Gläser³, J-M Schröder³, R Gmeiner¹, V Mlitz¹, J Pammer⁴, A Geusau¹ and E Tschachler^{1,5}

Empyema thoracis, defined as collection of pus in the pleural space, has been recognized since the time of Hippocrates and historically has been associated with high mortality.

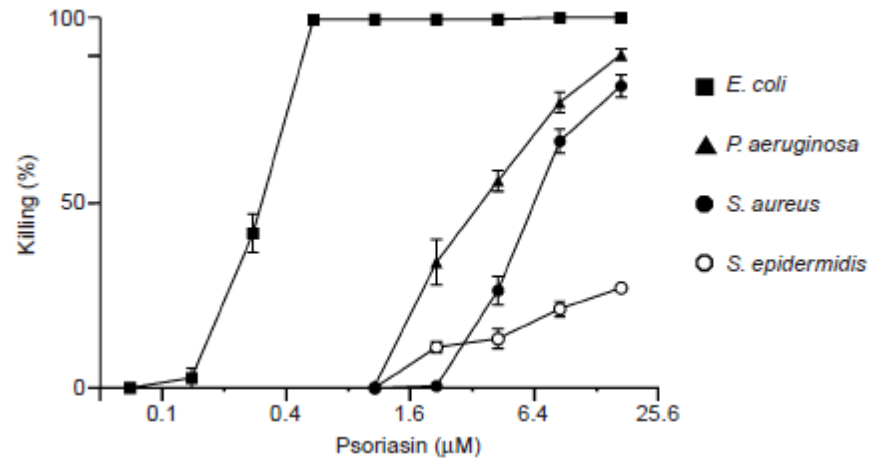
The mortality rate from empyema thoracis remains high and it ranges between 6%–24%.

Pleural infection develops in 65,000 patients each year in the United States and the United Kingdom.

Bacteriology: *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Escherichia coli*, *Haemophilus influenzae* and *Klebsiella pneumoniae*



Effect of Psoriasin on different bacteria



Antimicrobial psoriasin (S100A7) protects human skin from *Escherichia coli* infection

Regine Gläser^{1,3}, Jürgen Harder^{1,3}, Hans Lange², Joachim Bartels¹, Enno Christophers¹ & Jens-Michael Schröder¹



Christian
Doppler
Laboratory

for
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