XXXIV Diada Pneumològica
Reus 15 i 16 d'abril 2016

IMPORTANCIA DE LA COLONITZACIÓ BRONQUIAL

Oriol Sibila
Servei de Pneumologia
Hospital de la Santa Creu i Sant Pau
osibila@santpau.cat

UAB
Universitat Autònoma de Barcelona

Agenda

1) colonització bronquial en la MPOC

2) mecanismes de defensa pulmonars

3) conclusions

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1) colonització bronquial en la MPOC

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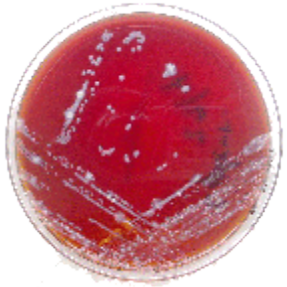
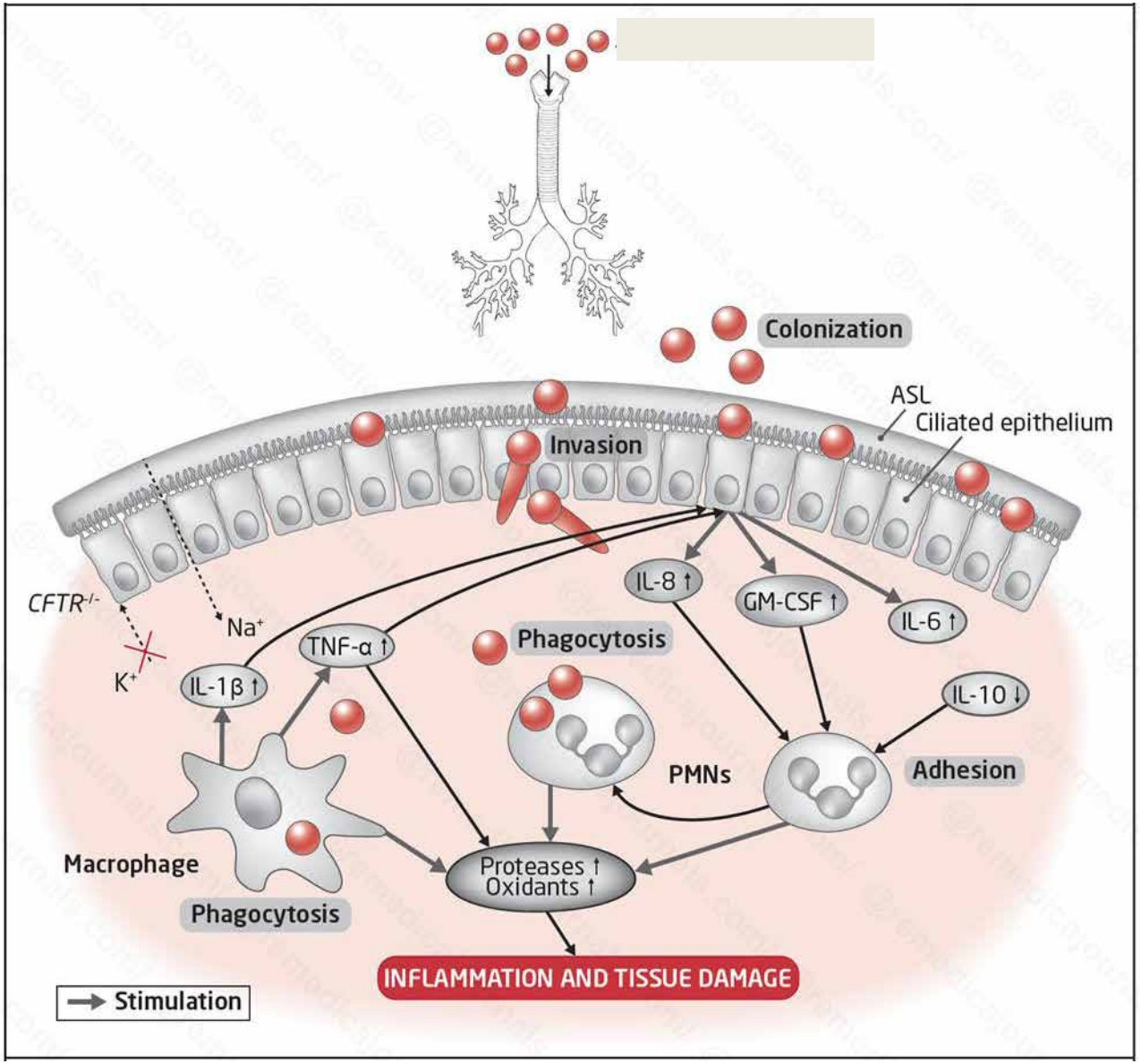
-63 años
-EPOC GOLD D
-FEV1 30% (previo 32%)
-PaO2 54 mmHg (previa 53)
-OCD
-ICS +LABA + LAMA
-Clínicamente estable los últimos 6 meses
-Expectorador habitual

¿Cultivo esputo?

60-70%



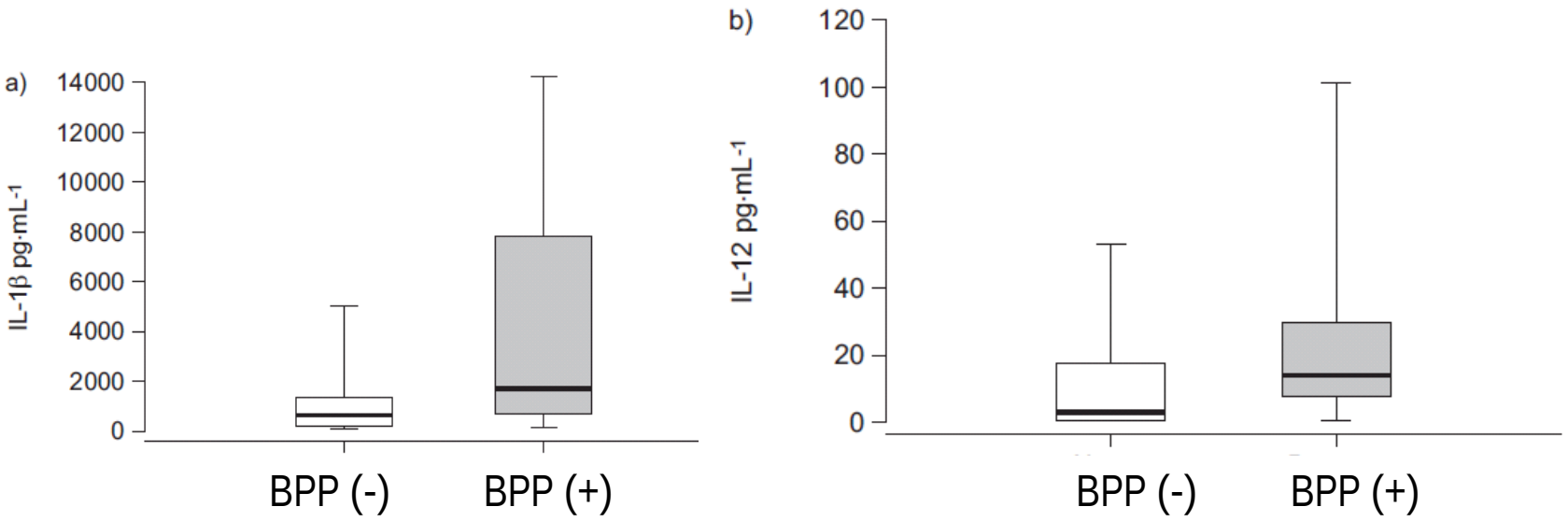
30-40%



Sethi S. *Curr Opin Infect Dis* 2008

Variability and effects of bronchial colonisation in patients with moderate COPD

A. Marin*,#, E. Monsó*,#, M. Garcia-Nuñez*,#, J. Sauleda#,¶,+, A. Noguera§, J. Pons/, A. Agustí#,¶,** and J. Morera*,#

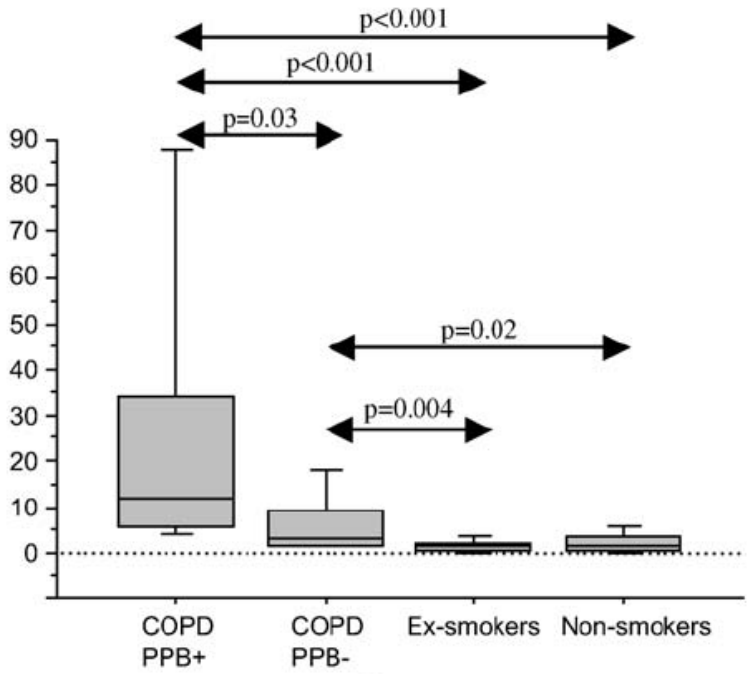


Eur Respir J 2010; 35(2): 295-302

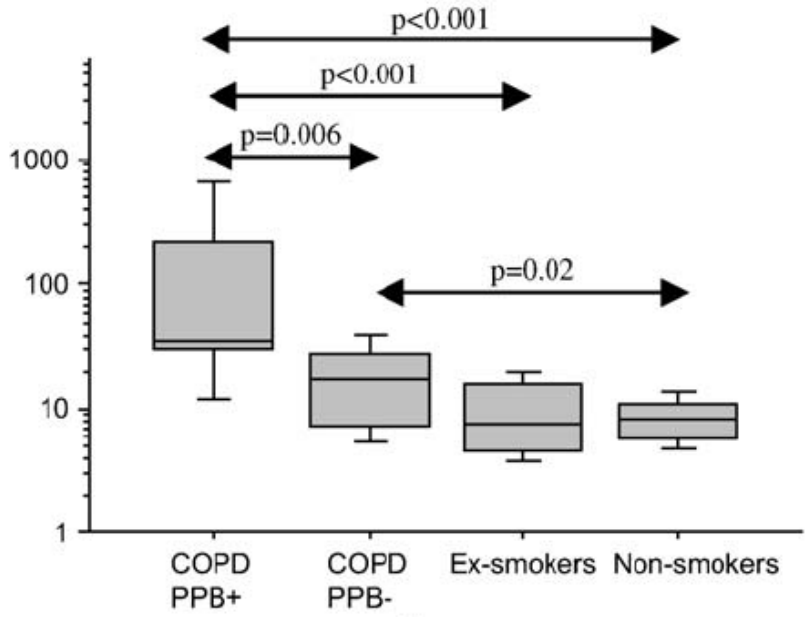
Airway Inflammation and Bronchial Bacterial Colonization in Chronic Obstructive Pulmonary Disease

Sanjay Sethi, Jane Maloney, Lori Grove, Catherine Wrona, and Charles S. Berenson

% PMN

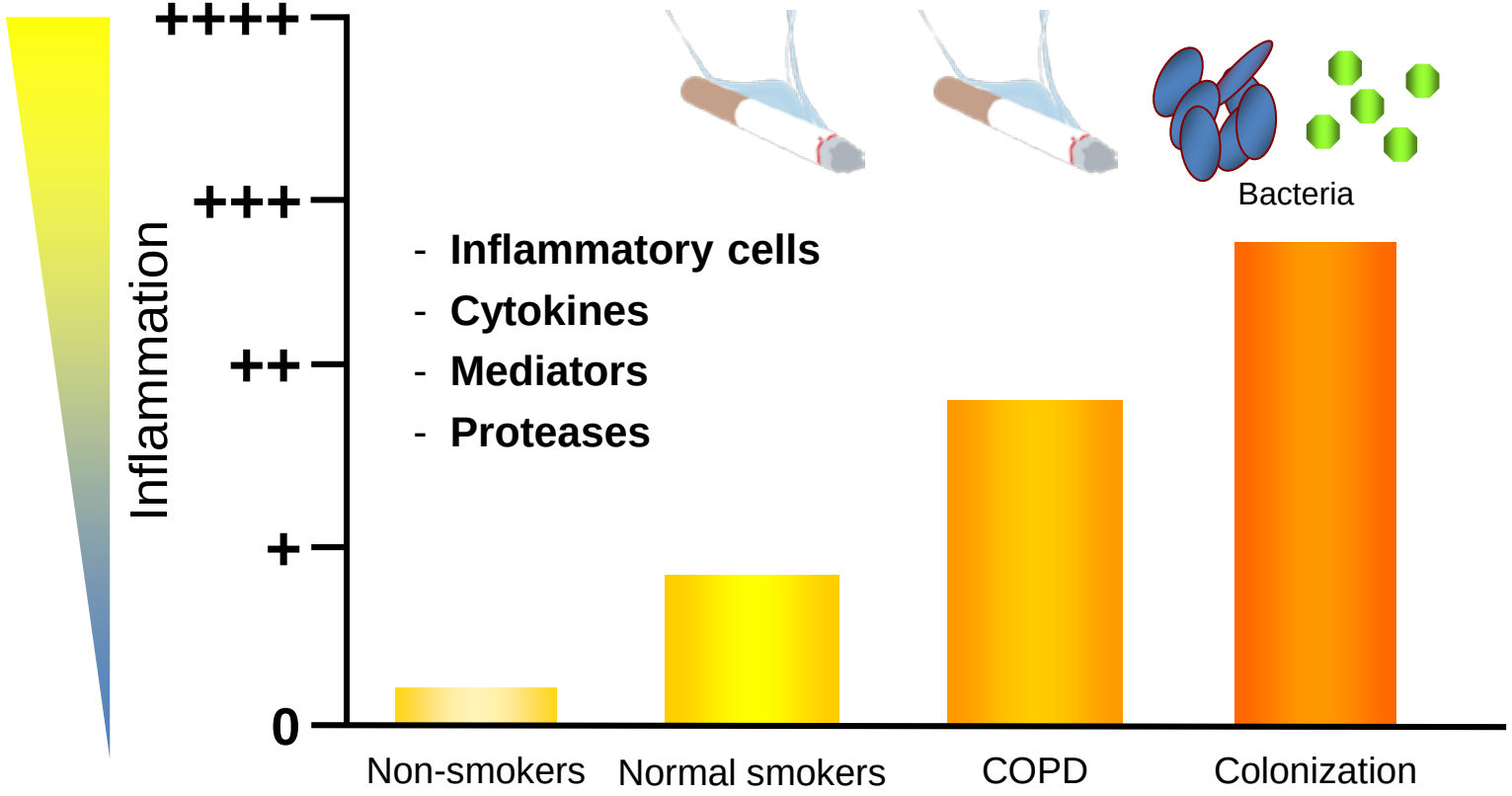


IL8 pg/mL



Am J Respir Crit Care Med 2006

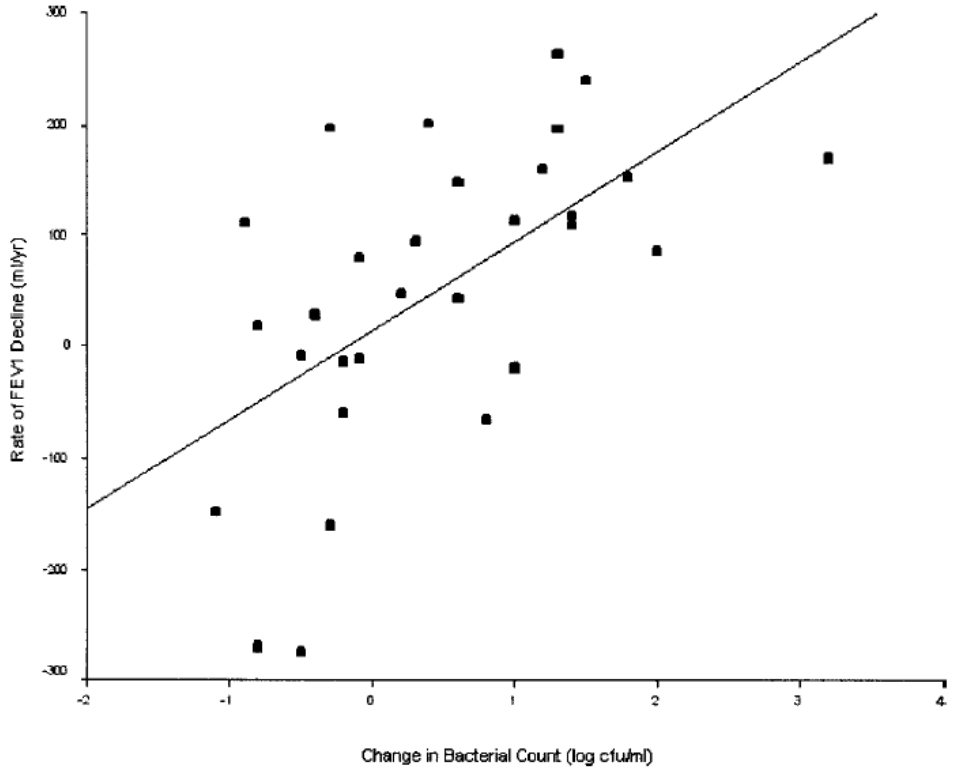
Inflamación vía aérea



Airway Bacterial Load and FEV_1 Decline in Patients with Chronic Obstructive Pulmonary Disease

Tom M. A. Wilkinson, Irem S. Patel, Mark Wilks, Gavin C. Donaldson, and Jadwiga A. Wedzicha

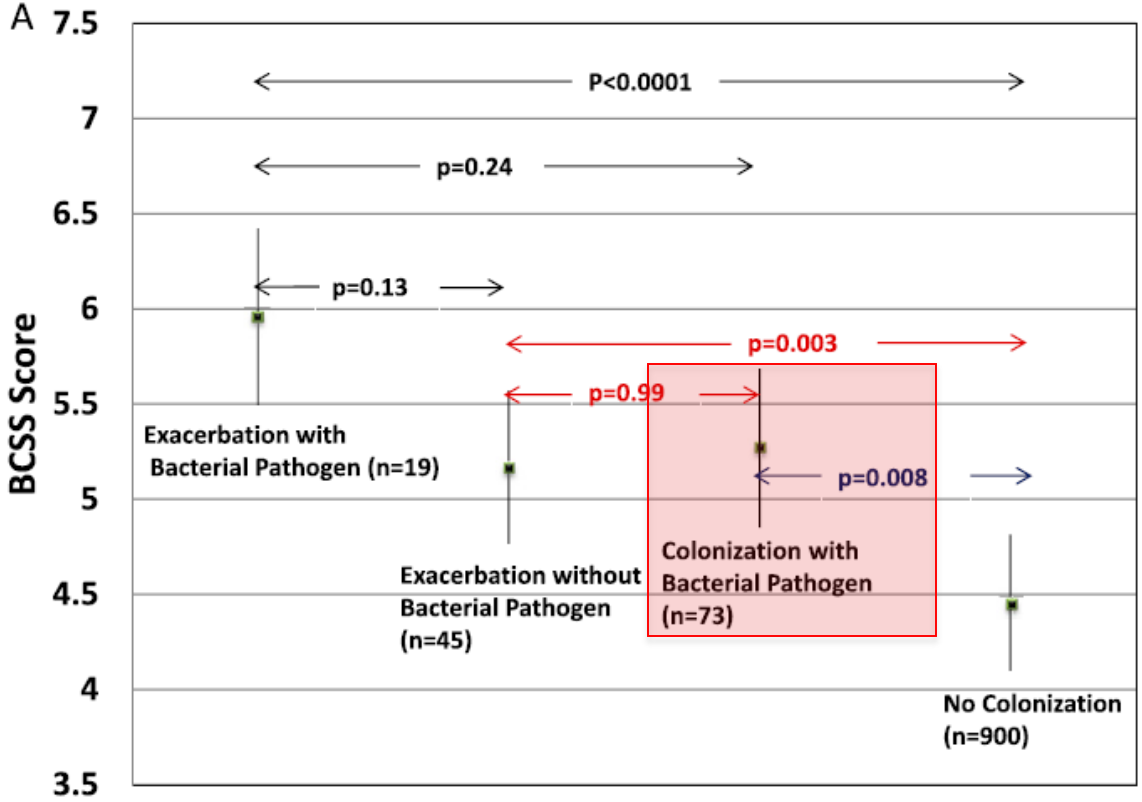
Academic Unit of Respiratory Medicine, St. Bartholomew's and Royal London School of Medicine, St. Bartholomew's Hospital, London, United Kingdom



Am J Respir Crit Care Med 2003

Bacterial Colonization Increases Daily Symptoms in Patients with Chronic Obstructive Pulmonary Disease

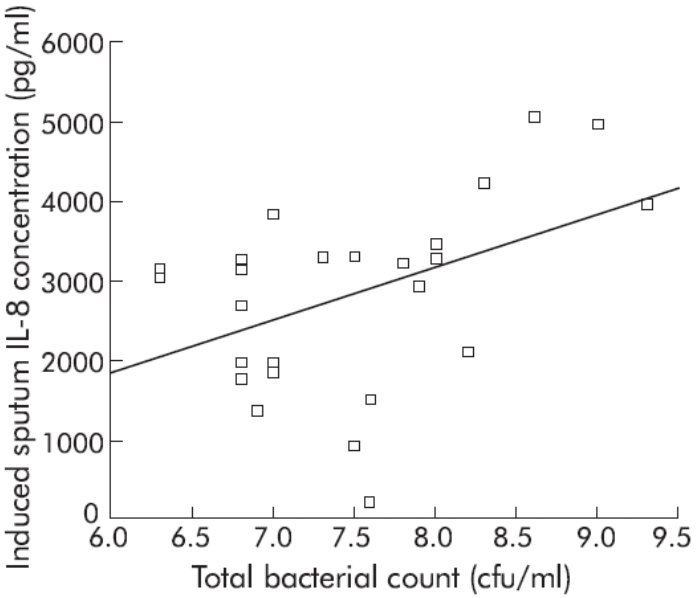
Himanshu Desai[1], Karen Eschberger[2], Catherine Wrona[3], Lori Grove[3], Aarti Agrawal[4], Brydon Grant[3,5], Jingjing Yin[3], G. Iyer Parameswaran[2,3], Timothy Murphy[3], and Sanjay Sethi[2,3]

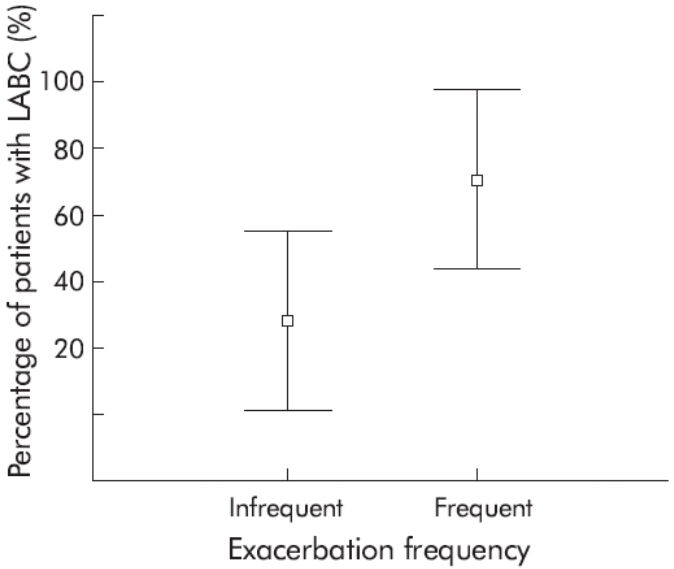


Annals ATS 2014

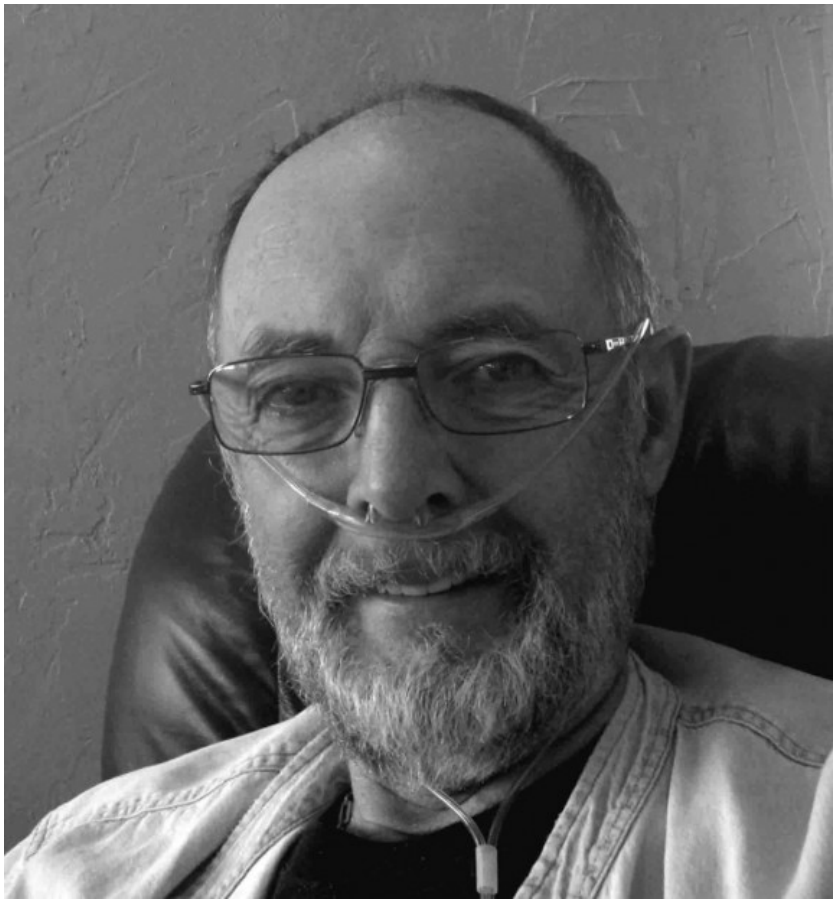
Relationship between bacterial colonisation and the frequency, character, and severity of COPD exacerbations

I S Patel, T A R Seemungal, M Wilks, S J Lloyd-Owen, G C Donaldson, J A Wedzicha





Thorax 2005; 57 (4): 759-64



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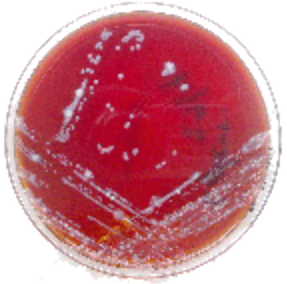

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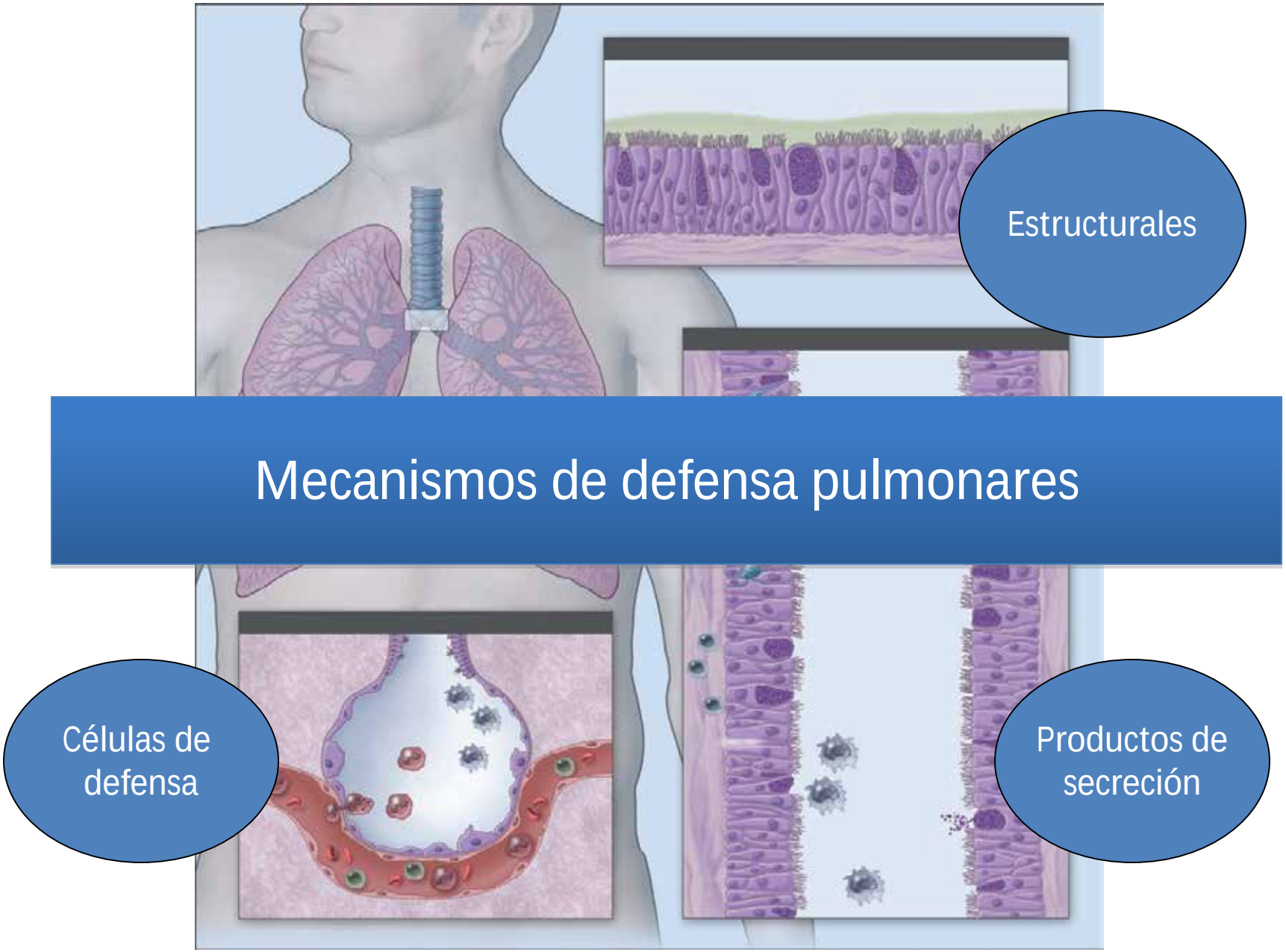
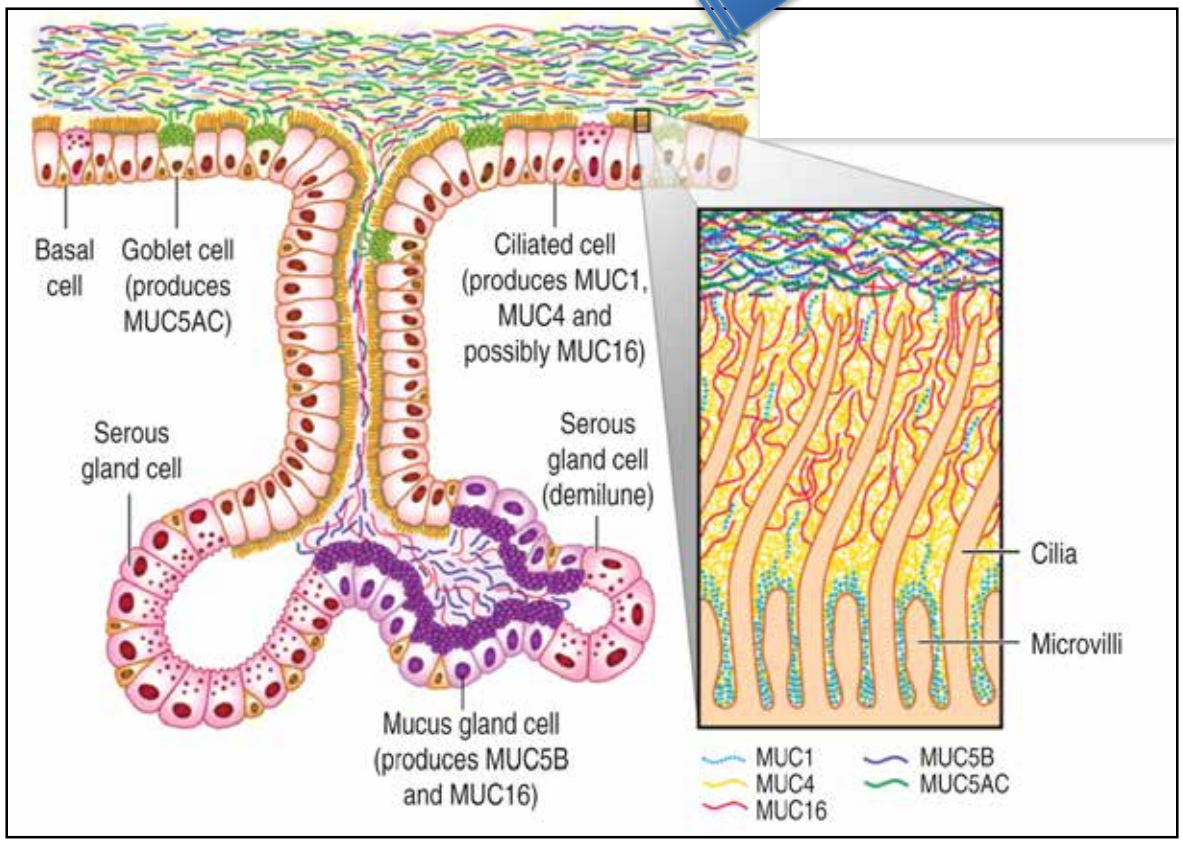
SEMPRE
FC BARCELONA - REAL MADRID

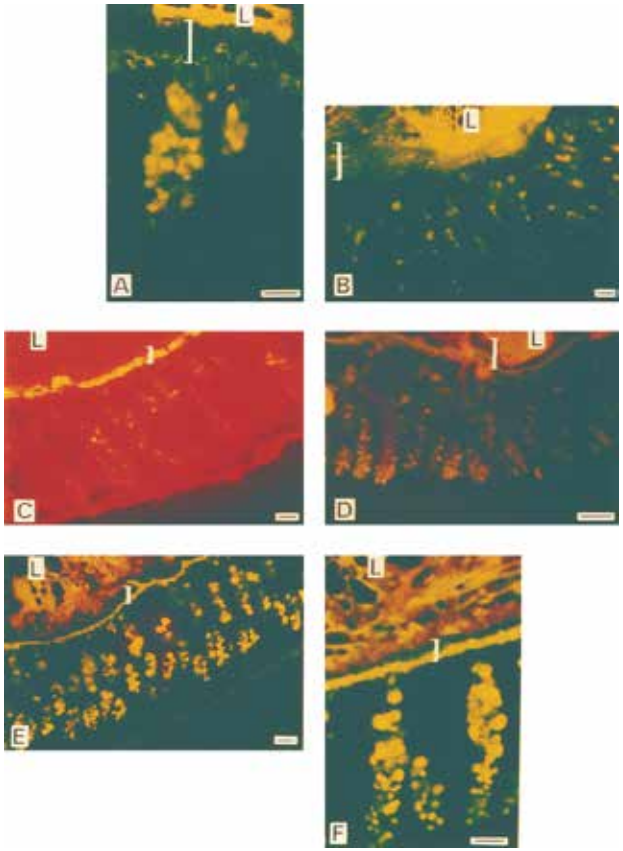


Sethi S, *N Eng J Med* 2007

MUCINS (MUC)

SECRETED MUCINS
- MUC 2
- MUC 5AC
- MUC 5B

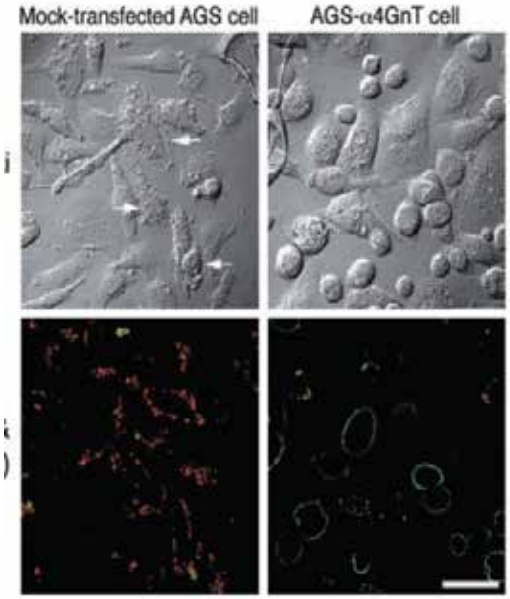




Science
AAAS

Natural Antibiotic Function of a Human Gastric Mucin Against *Helicobacter pylori* Infection
Masatomo Kawakubo *et al.*
Science **305**, 1003 (2004);
DOI: 10.1126/science.1099250

MUC1b



Science 2004; 305: 1003-1012

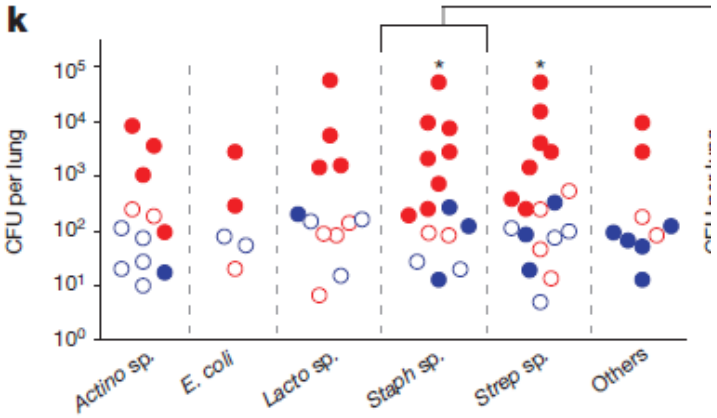
nature

LETTER

doi:10.1038/nature12807

Muc5b is required for airway defence

Michelle G. Roy[1]*, Alessandra Livraghi-Butrico[2]*, Ashley A. Fletcher[3]*, Melissa M. McElwee[1], Scott E. Evans[1], Ryan M. Boerner[4], Samantha N. Alexander[1], Lindsey K. Bellinghausen[1], Alfred S. Song[1], Youlia M. Petrova[1], Michael J. Tuvim[1], Roberto Adachi[1], Irlanda Romo[1,5], Andrea S. Bordt[6], M. Gabriela Bowden[6,7], Joseph H. Sisson[8], Prescott G. Woodruff[9], David J. Thornton[10], Karine Rousseau[10], Maria M. De la Garza[1], Seyed J. Moghaddam[1], Harry Karmouty-Quintana[4], Michael R. Blackburn[4], Scott M. Drouin[4], C. William Davis[2], Kristy A. Terrell[2], Barbara R. Grubb[2], Wanda K. O'Neal[2], Sonia C. Flores[3], Adela Cota-Gomez[3], Catherine A. Lozupone[3], Jody M. Donnelly[3], Alan M. Watson[3], Corinne E. Hennessy[3], Rebecca C. Keith[3], Ivana V. Yang[3], Lea Barthel[8,11], Peter M. Henson[3,11], William J. Janssen[3,11], David A. Schwartz[3], Richard C. Boucher[2], Burton F. Dickey[1] & Christopher M. Evans[3,3]

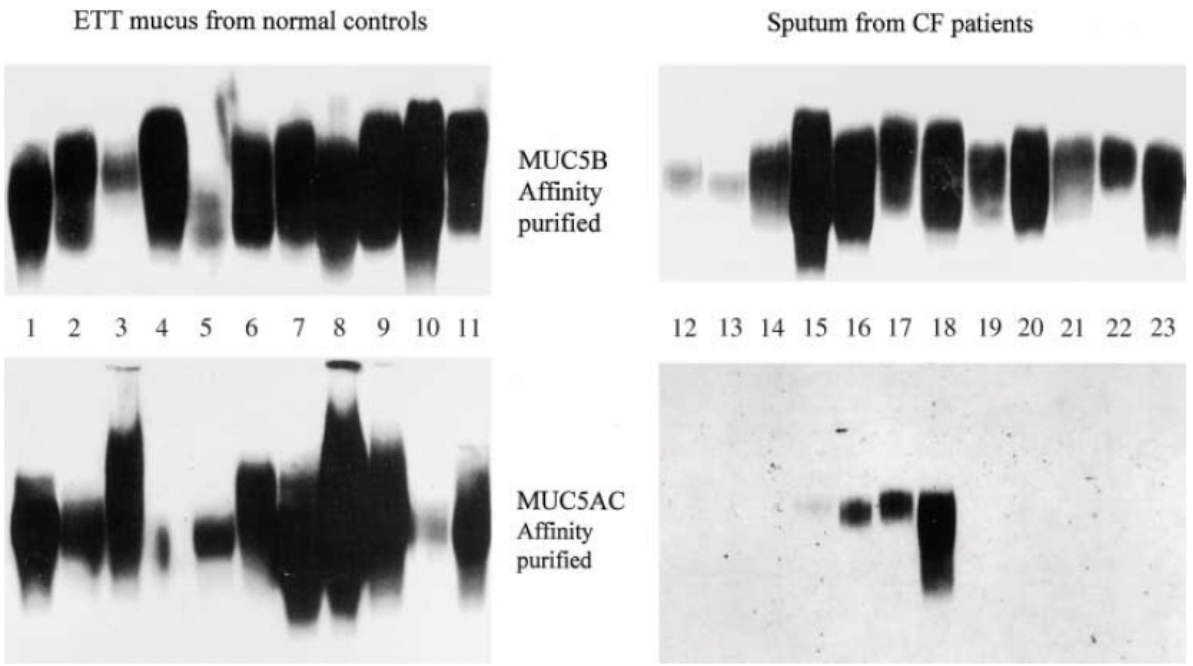


Nature 2014; 505: 423-6

MUC5AC and MUC5B Mucins Are Decreased in Cystic Fibrosis Airway Secretions

Markus O. Henke, Armin Renner, Rudolf M. Huber, Michael C. Seeds, and Bruce K. Rubin

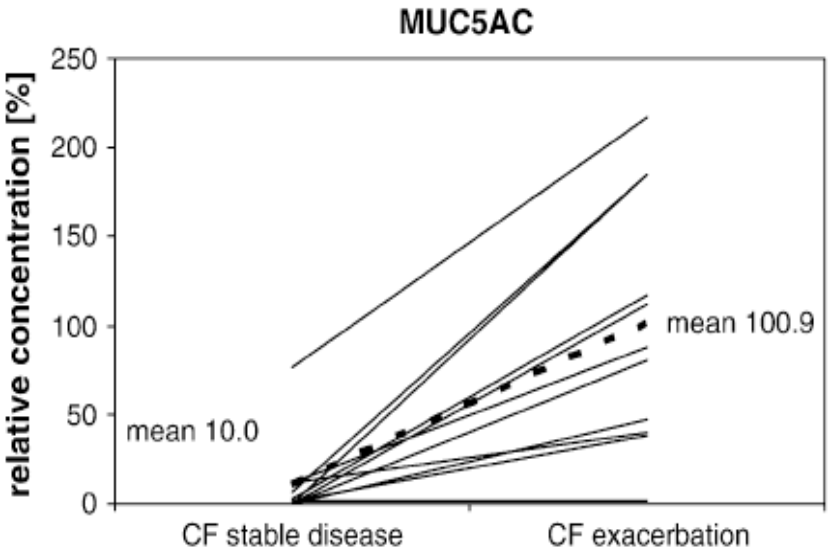
Department of Pulmonary Medicine, Philipps-University Marburg, Marburg; Department of Pulmonary Medicine, Klinikum Innenstadt, Ludwig-Maximilians-University, Munich, Germany; and Departments of Pediatrics and of Internal Medicine/Molecular Medicine, Wake Forest University School of Medicine, Winston-Salem, North Carolina

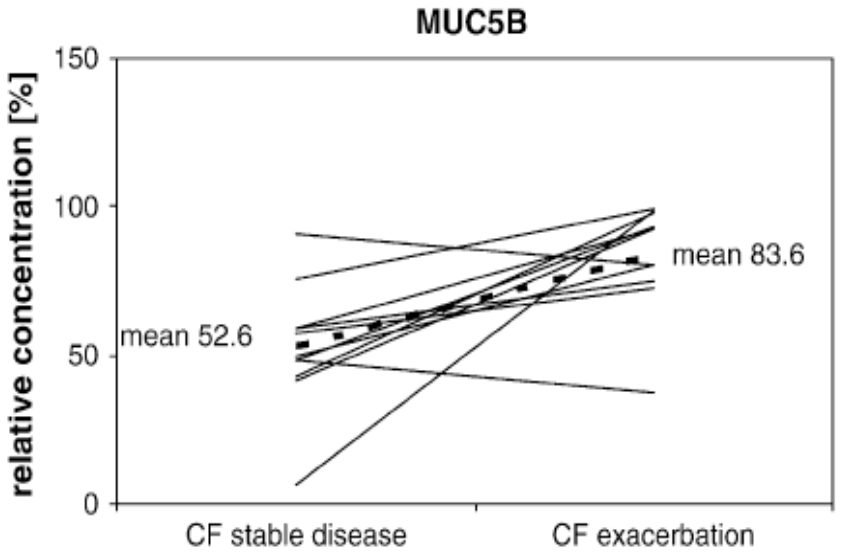


Am J Respir Crit Care Med 2005

MUC5AC and MUC5B Mucins Increase in Cystic Fibrosis Airway Secretions during Pulmonary Exacerbation

Markus O. Henke[1], Gerrit John[1], Michele Germann[1], Hermann Lindemann[2], and Bruce K. Rubin[3]



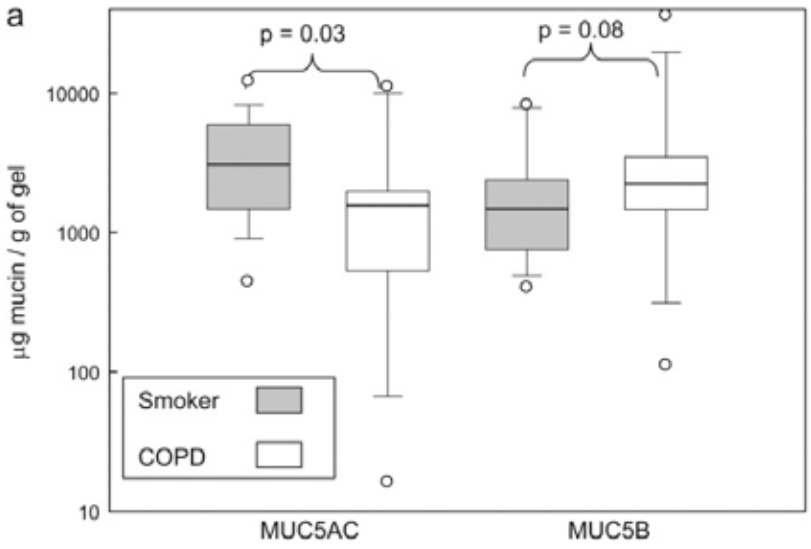


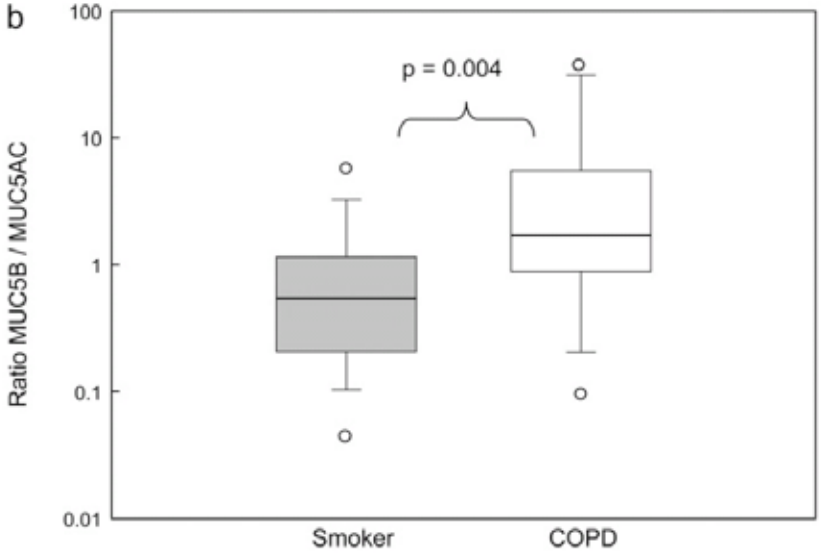
Am J Respir Crit Care Med 2007

MUC5B Is the Major Mucin in the Gel Phase of Sputum in Chronic Obstructive Pulmonary Disease

Sara Kirkham[1,2], Umme Kolsum[2], Karine Rousseau[1], Dave Singh[2], Jørgen Vestbo[2,3], and David J. Thornton[1]

[1]Wellcome Trust Centre for Cell-Matrix Research, Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom; [2]North West Lung Centre, University of South Manchester Hospital National Health Service Foundation Trust, Wythenshawe Hospital, Manchester, United Kingdom; [3]Department of Cardiology and Respiratory Medicine, Hvidovre Hospital, Hvidovre, Denmark





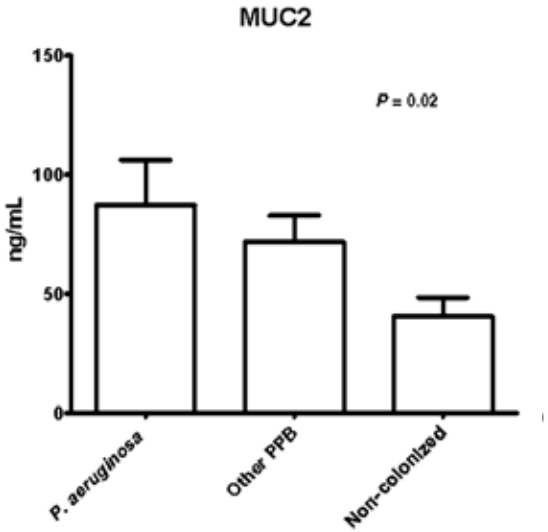
Am J Respir Crit Care Med 2009

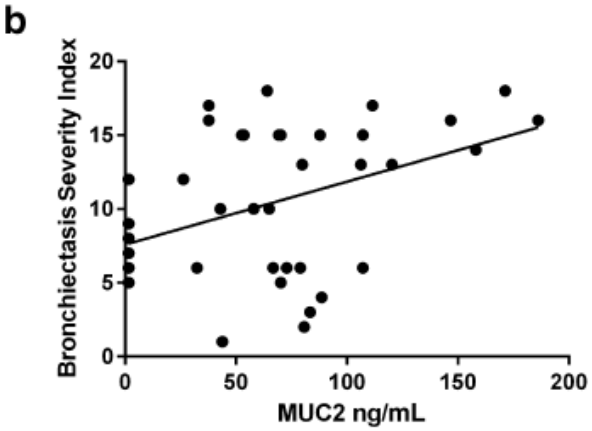
Official Journal of the Asian Pacific Society of Respirology
Respirology

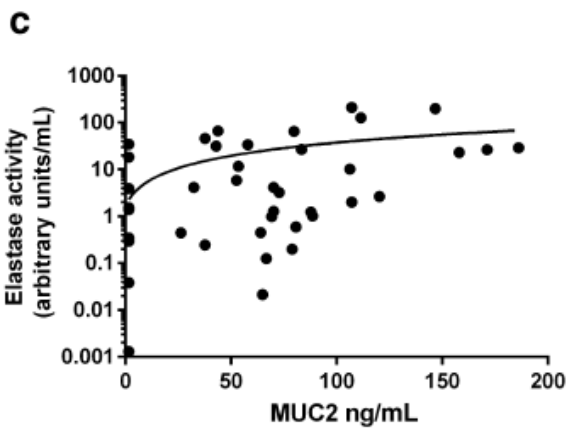
ORIGINAL ARTICLE

Secreted mucins and airway bacterial colonization in non-CF bronchiectasis

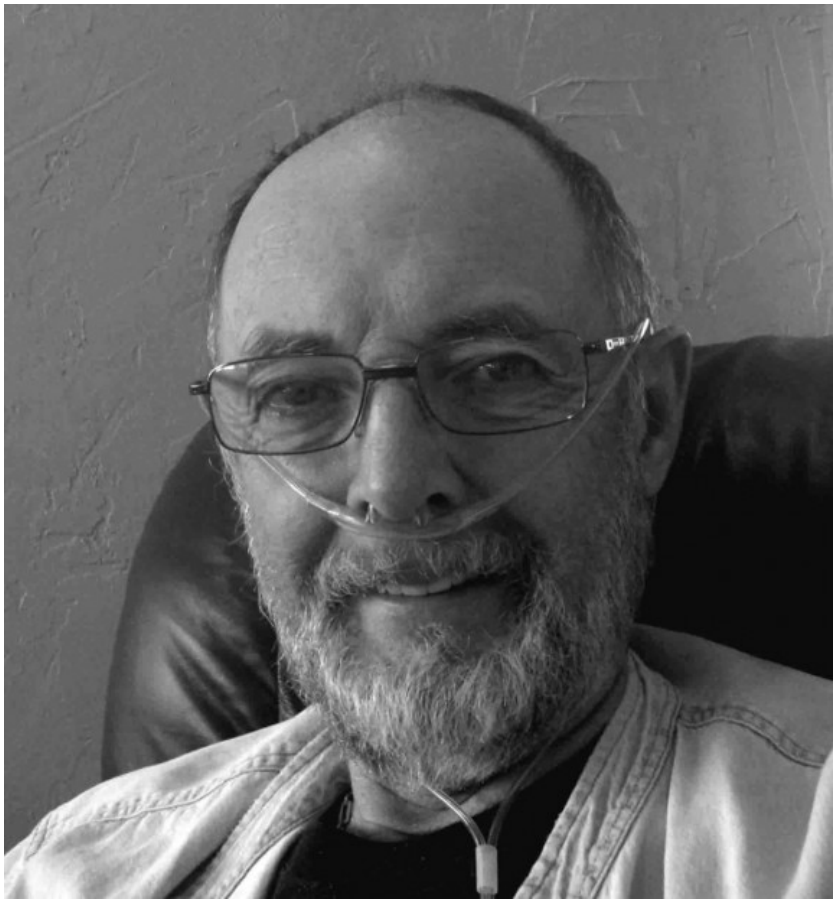
ORIOL SIBILA,[1,2] GUILLERMO SUAREZ-CUARTIN,[1,2] ANA RODRIGO-TROYANO,[1,2] THOMAS C. FARDON,[3] SIMON FINCH,[3] EDER FREDDY MATEUS,[2,4] LAIA GARCIA-BELLMUNT,[1,2] DIEGO CASTILLO,[1,2] SILVIA VIDAL,[2,4] FERRAN SANCHEZ-REUS,[2,5] MARCOS I. RESTREPO,[6,7] JAMES D. CHALMERS[3]



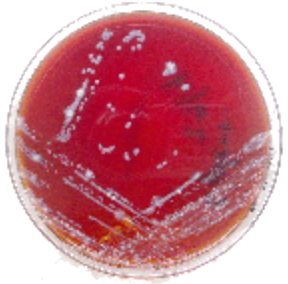




Sibila O et al. *Respirology* 2015; 20: 1082-1088

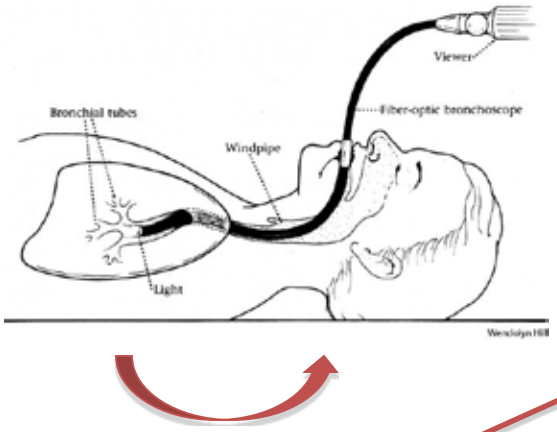


MUC ????



Airway Mucin 2 Is Decreased in Patients with Severe Chronic Obstructive Pulmonary Disease with Bacterial Colonization

Oriol Sibila[1,2], Laia Garcia-Bellmunt[1,2], Jordi Giner[1,2], Ana Rodrigo-Troyano[1,2], Guillermo Suarez-Cuartin[1,2], Alfons Torrego[1,2], Diego Castillo[1,2], Ingrid Solanes[1,2], Eder F. Mateus[2,3], Silvia Vidal[2,3], Ferran Sanchez-Reus[2,4], Ernest Sala[5,6], Borja G. Cosio[5,6], Marcos I. Restrepo[7], Antonio Anzueto[7], James D. Chalmers[8], and Vicente Plaza[1,2]



Stable severe COPD
(n=45)

PPB -
n=29 (69%)

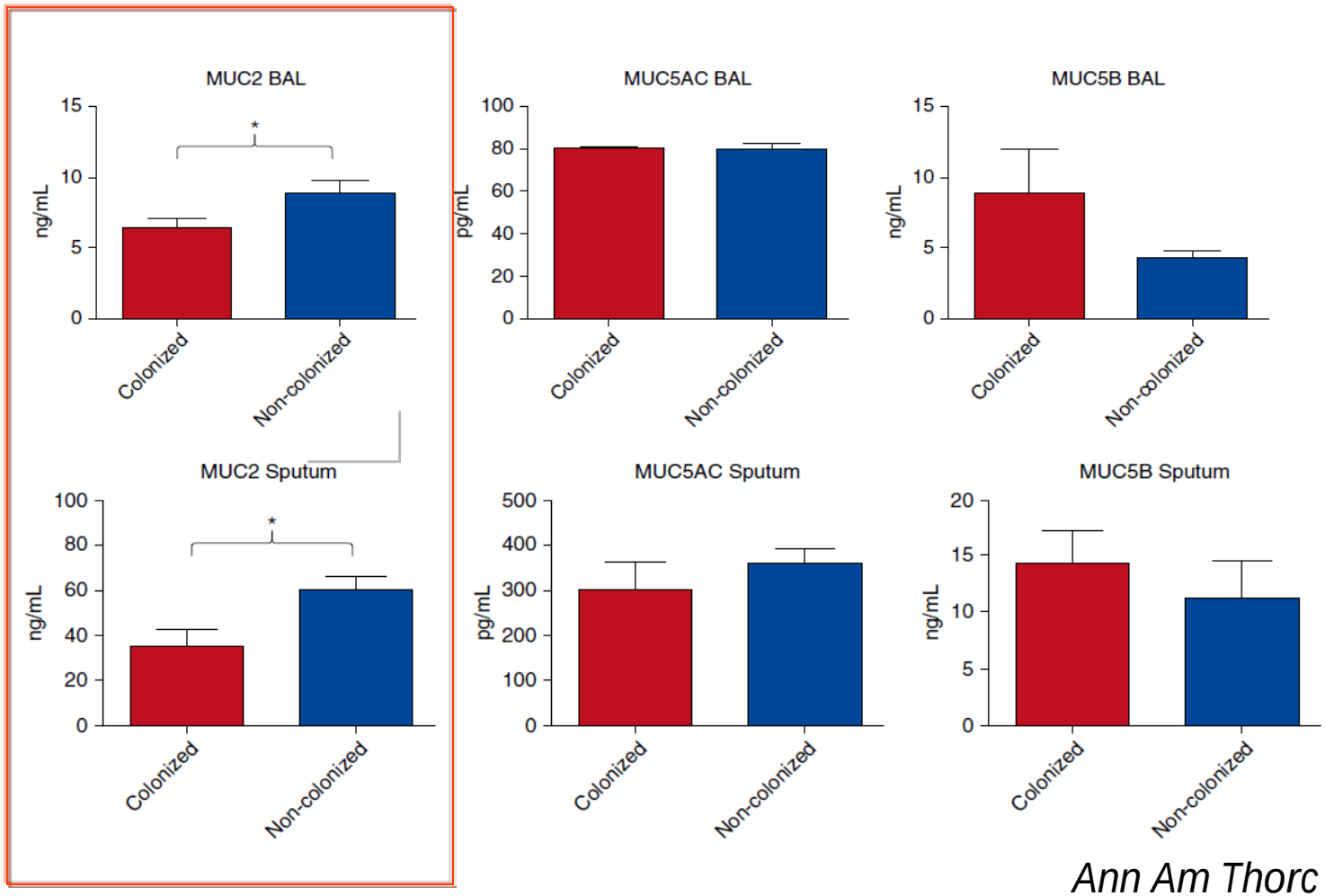
PPB +
n=14 (31%)

MUC BAL
MUC sputum

Ann Am Thorc Soc 2016

Airway Mucin 2 Is Decreased in Patients with Severe Chronic Obstructive Pulmonary Disease with Bacterial Colonization

Oriol Sibila[1,2], Laia Garcia-Bellmunt[1,2], Jordi Giner[1,2], Ana Rodrigo-Troyano[1,2], Guillermo Suarez-Cuartin[1,2], Alfons Torrego[1,2], Diego Castillo[1,2], Ingrid Solanes[1,2], Eder F. Mateus[2,3], Silvia Vidal[2,3], Ferran Sanchez-Reus[2,4], Ernest Sala[5,6], Borja G. Cosio[5,6], Marcos I. Restrepo[7], Antonio Anzueto[7], James D. Chalmers[8], and Vicente Plaza[1,2]



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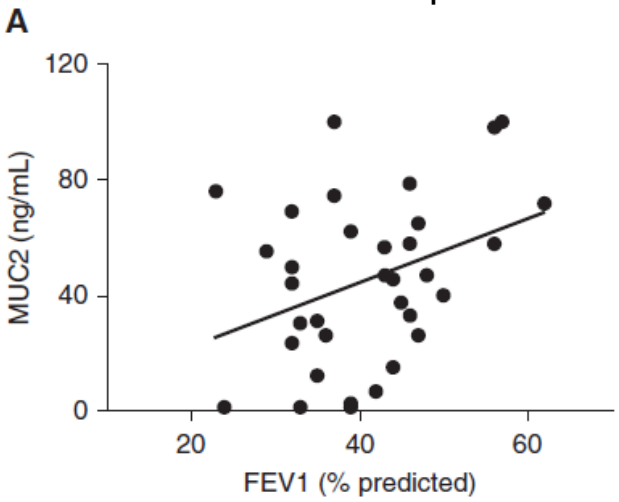
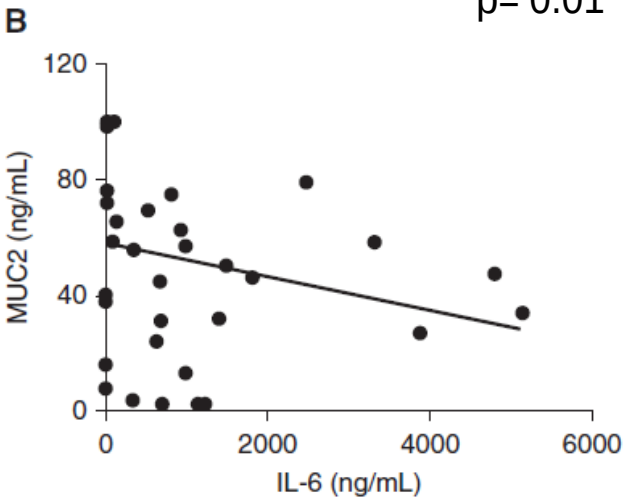
r= 0.32
p= 0.04



r= -0.40
p= 0.01

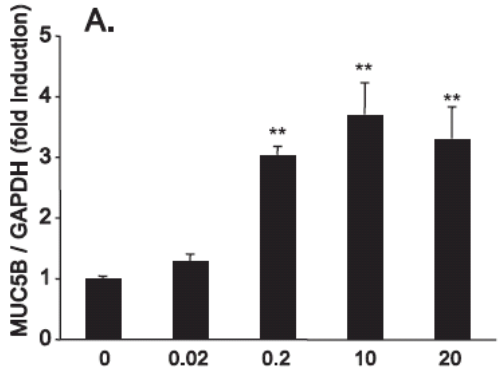


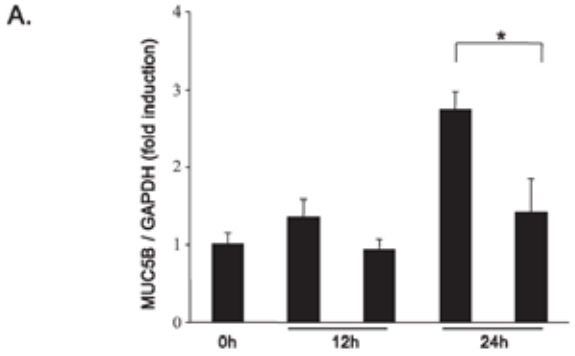
Ann Am Thorc Soc 2016

NF-κB Mediates IL-1β– and IL-17A–Induced *MUC5B* Expression in Airway Epithelial Cells

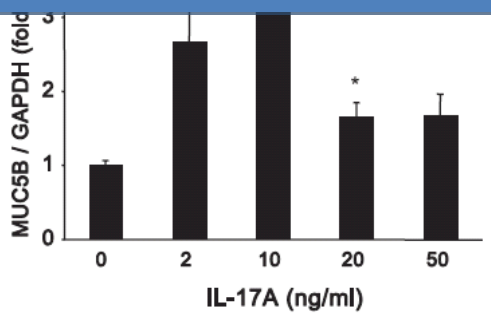
Tomoyuki Fujisawa[1]*, Mary Mann-Jong Chang[1], Sharlene Velichko[1], Philip Thai[1], Li-Yin Hung[1], Fei Huang[1], Newton Phuong[1], Yin Chen[2], and Reen Wu[1]

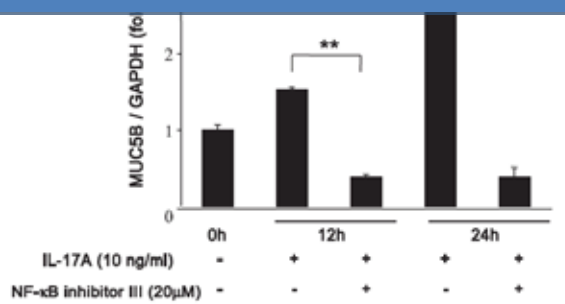
[1]Center of Comparative Respiratory Biology and Medicine, University of California at Davis, Davis, California; and [2]Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, Arizona



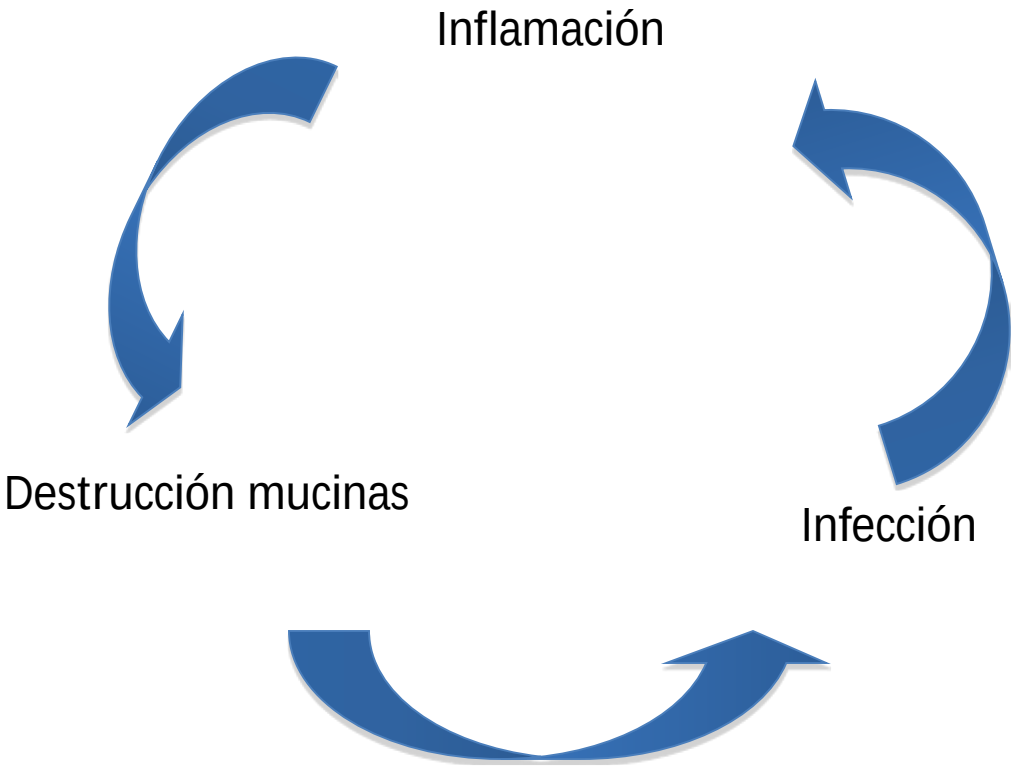


Inflamación { -elevada -mantenida ⇒ ↓ secreción MUC





Am J Respir Crit Care Med 2011

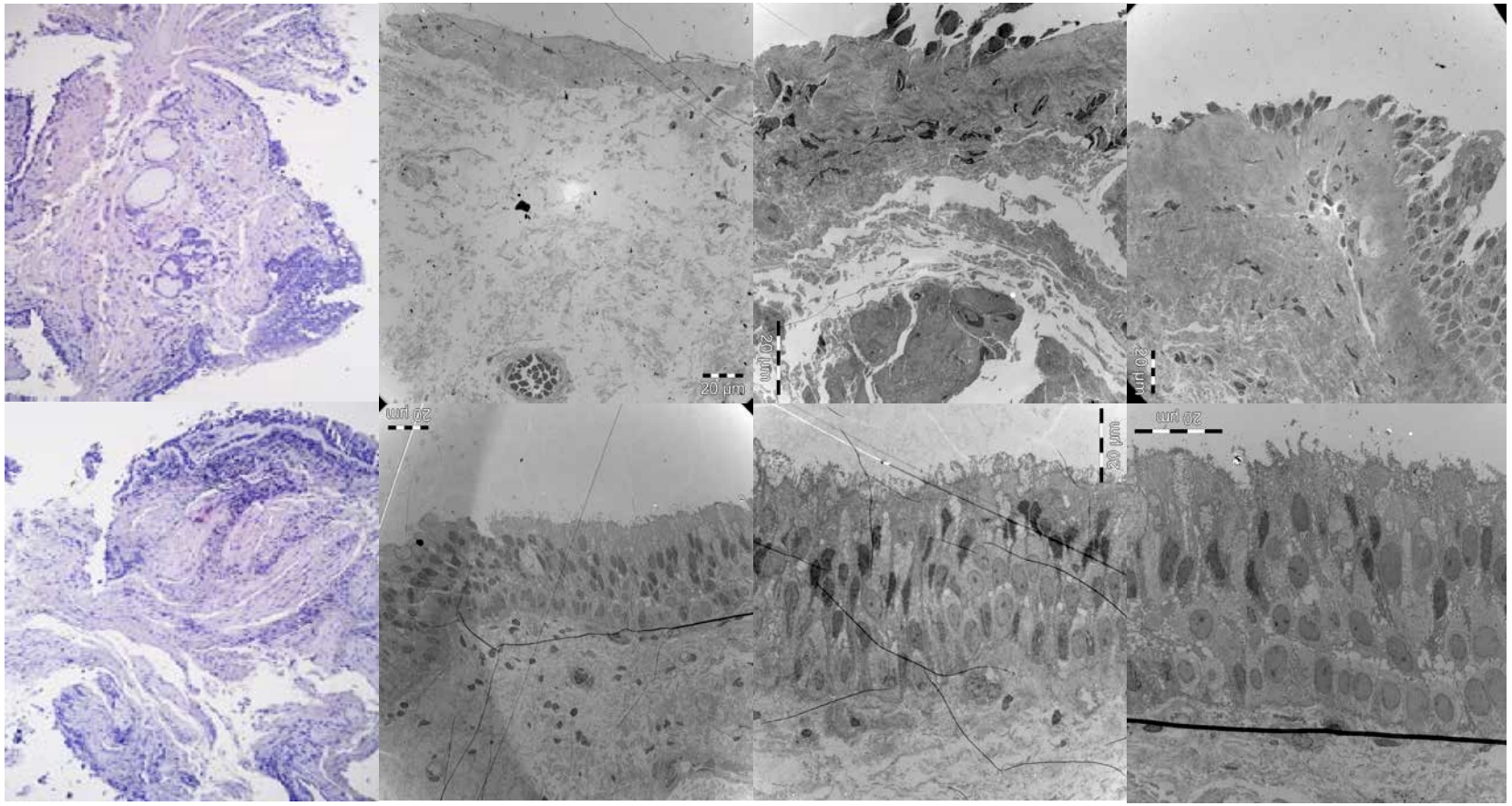

Inflamación
Infección
Destrucción mucinas

HOSPITAL DE LA SANTA CREU I SANT PAU
UNIVERSITAT AUTÒNOMA DE BARCELONA

KAROLINSKA INSTITUTET ANNO 1810
Karolinska Institutet

Colonized

Non-colonized



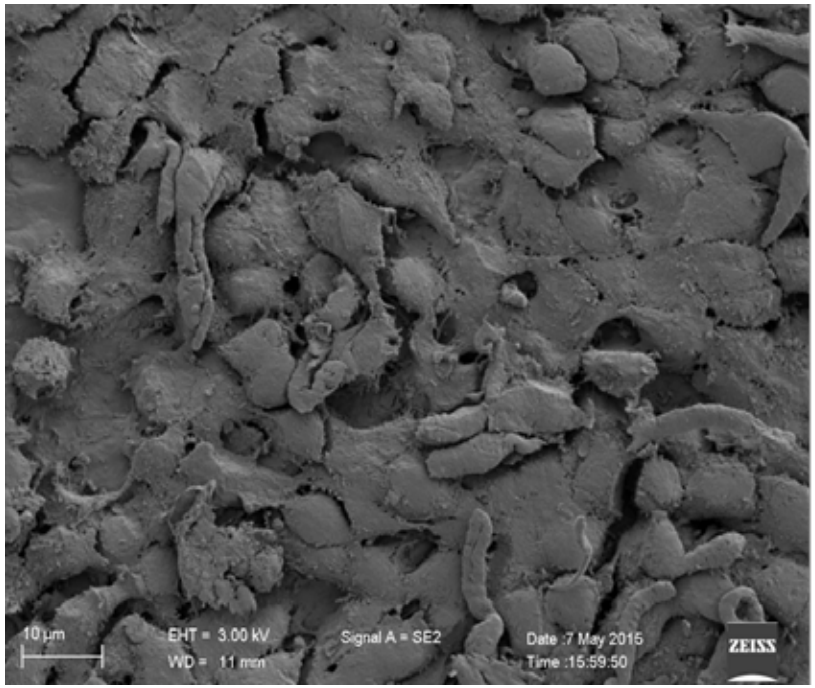
Rodrigo-Troyano A, SOCAP 2016

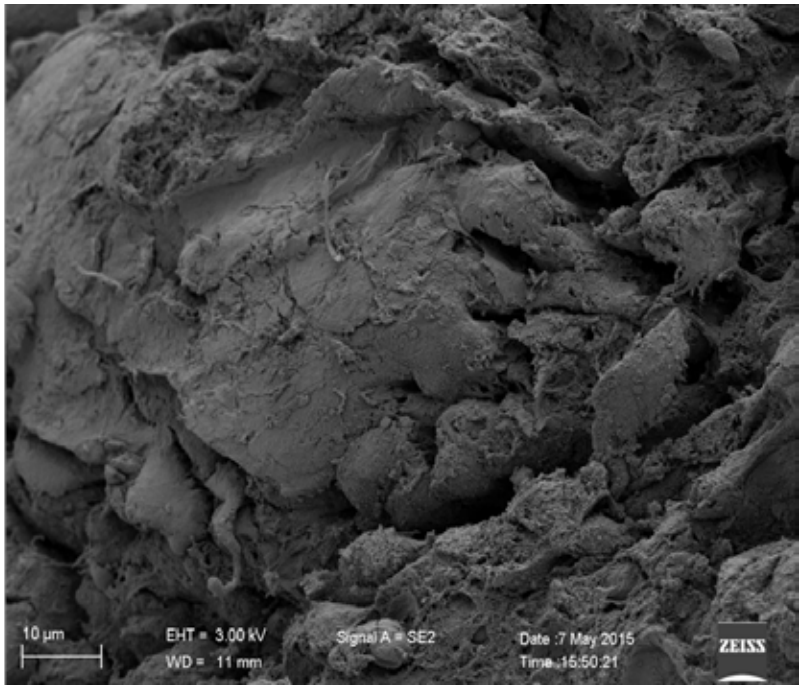
HOSPITAL DE LA SANTA CREU I SANT PAU
UNIVERSITAT AUTÒNOMA DE BARCELONA

KAROLINSKA INSTITUTET ANNO 1810
Karolinska Institutet

Non-Colonized

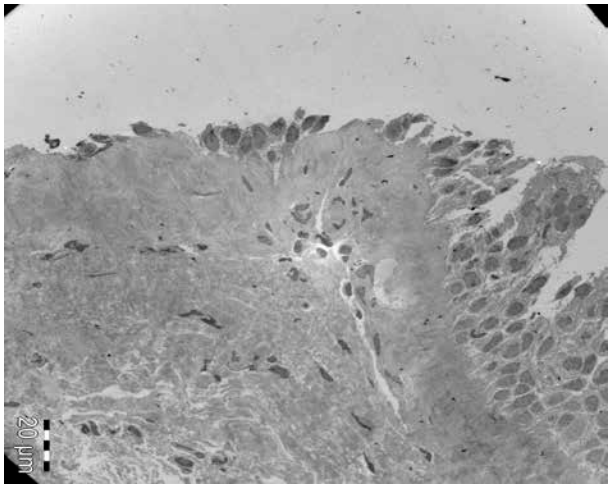
Colonized

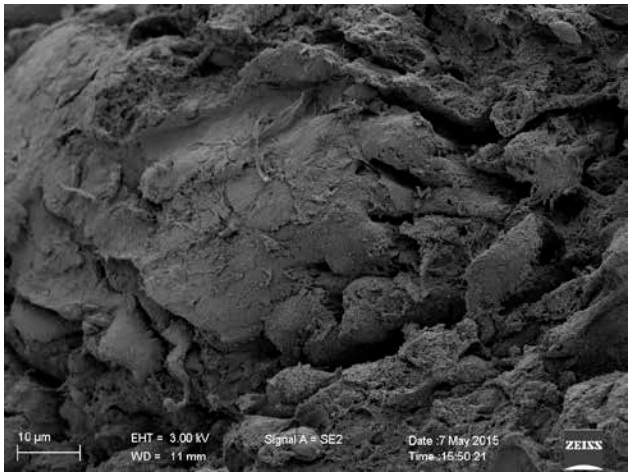




Rodrigo-Troyano A, SOCAP 2016

Colonized


20 µm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Date :7 May 2015
Time :15:50:21
ZEISS

Official Journal of the Asian Pacific Society of Respirology
Respirology
Celebrating 20 years of Respirology

***Pseudomonas aeruginosa* resistance patterns and clinical outcomes in hospitalized exacerbations of COPD**

<u>Previous PA isolation</u>

n= 54 AECOPD + *P. aeruginosa* — n= 23 (43%)

- PA-S n= 18 (33%) — n= 5 (28%)
- PA-R n= 36 (66%) — n= 18 (50%)

Rodrigo-Troyano A, *Respirology* 2016 (en prensa)

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Pseudomonas aeruginosa resistance patterns and clinical outcomes in hospitalized exacerbations of COPD

	PA S (n=18)	**PA R** (n=36)
30-day mortality	4 (22%)	1 (2.8%)
90-day mortality	6 (33%)	3 (8.3%)
Hospital LOS	19.3 (SD28.6)	12.9 (SD7.4)
Intensive care Unit admission	3 (16%)	2 (5.6%)
NIV	5 (27%)	7 (19%)
MV	3 (16%)	1 (2.7%)
Persistence at 90-days	4/8 (50%)	25/30 (83%)

Not-MDR (n=17)	**MDR (n=19)**
1 (5.9%)	0%
3 (17.6%)	0%
13.1 (SD 6.8)	12.8 (SD 8)
1 (5.9%)	1 (5.3%)
5 (31.3%)	2 (10.5%)
0%	1 (5.3%)
11/14 (75%)	14/16 (87%)

Rodrigo-Troyano A, *Respirology* 2016 (en prensa)

Agenda

1) colonització bronquial en la MPOC

2) mecanismes de defensa pulmonars

3) conclusions

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1) colonització bronquial en la MPOC

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IMPORTANCIA DE LA COLONITZACIÓ BRONQUIAL

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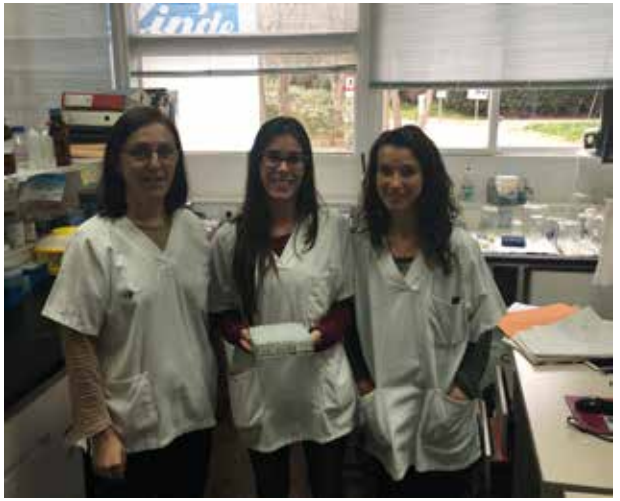
¿TTO ANTIINFLAMATORIO?

ANTIBIÓTICOS

¿MEDICINA REGENERATIVA?

HOSPITAL DE LA SANTA CREU I SANT PAU

UNIVERSITAT AUTÒNOMA DE BARCELONA



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