Catalyst, Stevenage, Hertfordshire, United Kingdom; 3Medicines Evaluation diamide. This was applied to the immunoassay of a panel of 21 analytes.

Discussion:
We were able to demonstrate significant increases in IL-1β, TNFα, MCP-1 and MMP-13 in sputum, with a maximal effect at 6h.

This simple and rapid diamide method therefore provides a novel way to treat DTT sputum to allow for the sensitive immunoassay of a wide range of analytes.

P2223
Serological detection of elastin fragments in COPD and IPF patients
F. Genovese, H.B. Skjøt-Arkil, R.E. Clausen, F.J. Martinez, C.M. Hogaboam.

Introduction: Elastin plays a critical role in the development of respiratory system disorders including COPD and IPF, whose pathogenesis involves an inflammatory response and tissue turnover mediated by proteases, especially matrix metalloproteinase (MMP)-12 secreted by activated macrophages.

Objectives: Our aim was to evaluate whether a novel biochemical marker of elastin degradation mediated by MMP-12 may provide information in relation to lung tissue destruction during pulmonary disease and aid in the diagnosis of respiratory disease.

Methods: Human elastin was in vitro cleaved by different proteases and the resulting peptides were analyzed by LC-MS/MS. Among more than 400 fragments, 444 (ELN-441/ELM) was chosen as candidate for antibody generation for its characteristic (AUROC) was best in COPD patients (AUROC 97%, p=0.00025) and lower but still significant in IPF patients (AUROC 90%, p=0.00011).

Conclusion: Serological inflammation is related to disease severity and to concomitant systemic hypertension and pulmonary hypertension in COPD patients independent of smoking status or biomass exposure.

P2221
C-reactive protein levels in COPD according to clinical parameters, smoking behavior and pulmonary hypertension
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Aim: To assess relationship between serum CRP levels and clinical parameters known to predict outcome, smoking history and biomass exposure in COPD.

Methods: Spirometry, echocardiography, SpO2 measurements and serum CRP levels were assessed in 89 stable COPD patients and 60 age- and sex-matched healthy subjects. BODE index scores were assessed in COPD patients. Associations between CRP levels and clinical parameters were evaluated.

Results: Of the COPD group (11% stage I, 48% stage 2, 29% stage 3, 11% stage 4) mean age is 60.6±8.5 years. CRP levels are higher in COPD patients than in controls (7.22±9.84 mg/L; 3.14±2.27 mg/L; p=0.005). CRP levels were not significantly different between COPD patients treated with inhaled corticosteroids and those not treated (7.90±10.65 mg/L; 6.17±8.46 mg/L; p>0.05). Significant relationship is found between CRP levels and FEV1, FEV1/FVC, FEV1/FVC, SpO2. MMRC dyspnea scale, 6 minute walk distance and BODE scores. Using multivari-ate analysis BODE scores and coexistence of systemic hypertension manifested the strongest association. CRP levels in COPD patients with and without pulmonary hypertension were significantly different (11.86±13.38 mg/L; 5.78±8.05 mg/L; p=0.012). CRP levels did not differ significantly according to smoking status and biomass exposure in COPD patients though COPD cases due to biomass exposure who never smoked also had higher CRP levels compared to healthy controls (9.16±10.03 mg/L; 3.14±2.27 mg/L; p=0.028).

Conclusion: Systemic inflammation is related to disease severity and to concomitant systemic hypertension and pulmonary hypertension in COPD patients independent of smoking status or biomass exposure.

P2220
A novel, simple and rapid method to measure soluble mediators in dithiothreitol-treated sputum
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Sputum is most often processed by the addition of dithiothreitol (DTT) to liquefy the sputum plug and release cells and soluble mediators for subsequent analysis.

This simple and rapid diamide method therefore provides a novel way to treat DTT sputum to allow for the sensitive immunoassay of a wide range of analytes.

Abstract printing supported by Chiesi Visit Chiesi at Stand B2.10
**P2224**

**Laryngopharyngeal reflex in chest clinic patients with upper airways symptoms**

Alexander Spyridoulias, 1 Siobhan Lillie 1 Jemma Haimes 1 Aashish Vyas 1 Stephen Fowler 1,2 1 Respiratory Medicine, Lancashire Teaching Hospitals NHS Foundation Trust, Preston, United Kingdom; 2 Respiratory Research Group, University of Manchester, United Kingdom

**Introduction:** Laryngopharyngeal reflex (LPR) may underlie both chronic cough and vocal cord dysfunction, and one explanation for a lack of response to standard anti-reflux therapy may be the presence of non-acid reflux. Salivary pepsin is a potential biomarker for LPR. The aim of this study was to evaluate if the detection of pepsin in saliva was associated with signs of laryngopharyngeal reflex in patients having nasendoscopy for investigation of upper airway symptoms.

**Methods:** We recruited patients from the Airways Clinic requiring nasendoscopy. All patients had the Reflex Finding Score (RFS) recorded at nasendoscopy. Salivary pepsin was quantified with a lateral flow device using monoclonal antibody labelling (Peptest, RD Biomed, UK).

**Results:** Of 20 patients recruited, 12 were confirmed to have VCD and 13 a clinical suspicion of LPR (based on an RFS > 7). Pepsin was detected in the saliva of 11/20 subjects (55%), including 67% of the VCD patients and 61% of those with a high RFS, although 43% of those with a low RFS also had a positive pepsin. Salivary pepsin had a sensitivity of 62% and specificity of 57% for predicting a high RFS. There was no significant correlation between RFS scores and salivary pepsin. Seven of the 10 patients already on treatment for a clinical diagnosis of reflux had a positive pepsin assay.

**Conclusions:** Salivary pepsin was frequently present in patients with upper airway symptoms, and not strongly related to clinical findings of reflux, suggesting a high prevalence of sub-clinical LPR. Further investigation should determine the clinical relevance of this, and whether LPR treatment results in an improvement in pepsin levels and the associated upper airway symptoms.

**P2225**

**Comparison of serum osteopontin levels in patients with exacerbations and stable chronic obstructive pulmonary disease**

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**Background:** Osteopontin is recognized as an important adhesive bone matrix and a key cytokine involved in immune cell recruitment, tissue repair and remodeling. Then serum levels of osteopontin have not been evaluated in patients with chronic obstructive pulmonary disease (COPD). The aim of this study is to evaluate and compare the serum levels of osteopontin in patients with exacerbations and stable COPD.

**Methods:** Serum samples were obtained from 22 healthy control subjects, 18 stable COPD patients and 24 exacerbation patients. Serum concentrations of osteopontin were measured by the ELISA method.

**Results:** Serum levels of osteopontin were higher in patients with exacerbation than with stable COPD and in healthy control (62.4±5.1 ng/mL vs. 36.9±11.1 ng/mL with osteopontin level was significantly decreased after clinical improvement than during exacerbation (45.4±2.1 ng/mL, p<0.003). Also osteopontin levels showed a significantly negative correlation with forced expiration volume in one second(FEV1) in healthy controls and stable COPD (r=0.389, p=0.013). C-reactive protein was positively correlated with osteopontin levels in patients with COPD exacerbation(r=0.775, p=0.0009). There was no significant difference between the 2 groups in absolute eosinophil count (p=0.12). However, the mean eosinophil was 23.3% ± 24 in asthma & 7% ± 8.5 in COPD (p=0.006).

**Conclusions:** The serum levels of osteopontin were increased in patients with COPD exacerbations and tended to decrease after clinical improvement. These results suggest the possible role of osteopontin as a biomarker of COPD exacerbation.

**P2226**

**Correlation between sputum cytokony and lung physiology in asthma and COPD subjects in Indian population**

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**Pulmonary Research, Chest Research Foundation,**

Pune, Maharashtra, India

**Airway cellular inflammation is known to contribute to the pathophysiologic consequences of asthma and COPD; however, the differences in their profile and association with lung function parameters have not been investigated in Indian population.** We aimed to investigate the relationship between inflammatory cellular profile and lung functions in asthma and COPD.

**Methods:** 25 asthma & 29 COPD patients underwent pre/post spirometry in accordance to ATS/ERS criteria & sputum induction with 3% hypertonic saline, processed with 0.1% DTT to investigate cellular inflammatory profile in their airways.

**Results:** A significant difference was observed between COPD & asthma in total median neutrophil counts [113.6 (IQR:65.4, 161.8) x10⁶/g vs 5.9 (IQR:0.1, 30.2) x10⁶/g, p=<.000011] & lymphocytes [8.5 (IQR:0.2, 84.0) x10⁶/g vs 1.2 (IQR:0.2, 4.4) x10⁶/g, p=0.021]. There were no significant difference between the 2 groups in absolute eosinophil count (p=0.12). However, the mean eosinophil was 23.3% ± 24 in asthma & 7% ± 8.5 in COPD (p=0.006).

**Conclusion:** Systemic inflammation is a known and important component of the asthma-COPD overlap. The pattern of systemic inflammation in asthma-COPD overlap is differing from COPD characterized as an elevated IL-6 and SAA levels. It is not related to airflow inflammation, and may be an independent treatment target.

**P2227**

**Validity of serum surfactant protein D as a lung-specific biomarker in monitoring asthma, chronic obstructive pulmonary disease and chronic bronchitis in Lebanese patients: Preliminary results**

Rama Jumblatt 1, Mira Waked 1, Zeina Akiki 1, Pascale Salamé 2,3,4,5.

Hasnaa Bouharoum-Tayoun 1, Ida Torence 2, Grith Lykke Stensen 1, Soulaaima Chamali 1, 1Immunology Laboratory, Faculty of Health Sciences, Lebanese University, Beirut, Lebanon; 2Histology, Cell and Molecular Biology Laboratory, Faculty of Sciences, Lebanese University, Beirut, Lebanon; 3Institute of Molecular Medicine, Faculty of Health Sciences, University of Southern Denmark, Odense, Denmark

**Surfactant protein D (SP-D) is an oligomeric lung-derived lectin with important roles in innate host defence. Previous studies have suggested serum SP-D as a reliable biomarker for inflammatory lung diseases.** Our objective was to validate for the first time in the Lebanese population, SP-D as a clinical biomarker for asthma, COPD and chronic bronchitis. In addition, we studied the correlation between SP-D level and the disease severity. A case-control study is being conducted in the Lebanese population. To date, 46 cases of asthma, 24 cases of COPD, 23 cases of chronic bronchitis patients and 46 controls have been analysed. Lung function measurements were performed by spirometry, a standardized questionnaire was filled and serum levels of SP-D, CRP and plasma uric acid levels were measured.

The mean level of SP-D was significantly elevated in asthmatics (1394.26 ng/ml; p = 0.023), in COPD patients (1507.24 ng/ml; p = 0.013) and in chronic bronchitis patients (1477.27 ng/ml; p = 0.007) when compared to controls (980.1 ng/ml). Serum SP-D levels correlated significantly with the disease severity only in COPD (p = 0.007). Conversely, levels of CRP and fibrinogen did not correlate with disease severity.

We conclude that SP-D could be used as a biomarker for asthma, COPD and chronic bronchitis and seems to be more specific than general systemic markers of inflammation, CRP and fibrinogen. The ongoing study should provide further information on the cut off values and best reference range of serum SP-D reflecting the degree of inflammation in the investigated diseases.

**P2228**

**Systemic inflammation in older adults with asthma-COPD overlap syndrome**

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**Background:** The overlap of asthma and COPD is common in older people with obstructive airway disease (OAD). Systemic inflammation is associated with adverse clinical outcomes and co-morbidities in COPD, but its role on asthma-COPD overlap syndrome is unknown. This study aimed to examine systemic inflammation in asthma-COPD overlap, and the potential clinical relevance with OAD.

**Method:** Serum high sensitivity C-reactive protein (hsCRP), Interleukin 6 (IL-6) and serum amyloid A (SAA) were measured in 108 adults older than 55 years comprising healthy controls (n=27), asthma (n=7), asthma-COPD overlap (n=45). Spriometry, induced sputum, quality of life, co-morbidities and medications were assessed. Levels of systemic inflammatory mediators were compared, and the associations with clinical characteristics were tested in multivariate regression model.

**Results:** Patients with asthma-COPD overlap had significantly elevated IL-6 levels. SAA level was raised in both the COPD and asthma-COPD overlap groups. CRP level was significantly increased in COPD. The disease groups had different patterns of systemic inflammation. CRP was positively associated with BMI, whereas IL-6 was predicted by age, FEV1%predicted, and cardiovascular disease. SAA level was associated with co-morbidity, and females had higher SAA level than males. Systemic markers were not associated with airflow inflammation.

**Conclusion:** Systemic inflammation is a common and important component of the asthma-COPD overlap. The pattern of systemic inflammation in asthma-COPD overlap is differing from COPD characterized as an elevated IL-6 and SAA levels. It is not related to airflow inflammation, and may be an independent treatment target.
P2229
Repeatability and inter-relationships of small airway biomarkers in asthma
Sherif Gamal1, Sushiladevi Natarajan1, Steven Corrall2, Anuha Singapuri1, Dhanamay Desai3, Per Gustafsson4, Christopher Brightling2, Salim Sadiku2,1
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Background: There is evidence that small airway dysfunction may have an important role in asthma. We aimed to determine the within-visit and between-visit repeatability of small airway biomarkers in asthma, and explore the inter-relationships between them and with standard pulmonary function tests.

Methods: We recruited ninety-eight patients with asthma. All participants attended a baseline visit at which they underwent spirometry, body plethysmography, measurement of carbon monoxide mixing capacity, impulse oscillometry (IOX), multiple breath washout (MBW) and induced sputum cell count. Eighteen patients undertook two-week and three-month follow-up visits, and twenty-six patients undertook six-month follow-up visits, at which all physiological tests were repeated.

Results: Small airway biomarkers displayed excellent within-visit repeatability (intraclass correlation coefficient [ICC] = 0.9), with the exception of Scond, which was only moderately repeatable (ICC = 0.629). The biomarkers were all very stable over a three-month time frame, but Scond and Sbic were only moderately stable over six months. Principal components analysis of the variables derived five components, corresponding to the concepts of:
1. Expiratory flow limitation/air trapping
2. Heterogeneous airway constriction/closure
3. Ventilation heterogeneity
4. Airway inflammation
5. Impaired diffusion capacity

Conclusions: Small airway biomarkers are repeatable and stable over three months. Moreover, they appear to provide additional and independent physiological information over and above standard pulmonary function tests.

P2230
Metabolic syndrome and chronic diseases in COPD
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Introduction: In this study, we examined accompanying comorbidities and metabolic syndrome (MS) in patients with COPD.

Method: Sixty-six patients with COPD and 40 subjects as control group were included. The index severity of chronic diseases was evaluated by using the MCIRS. MS was defined according to National Cholesterol Education Program.

Results: MCIRS was moderately repeatable and stable over three months. The rate of Metabolic Syndrome 0% 33.3% 26.5% 10% while positive association with BODE index.

Results of MS were defined according to National Cholesterol Education Program.

Conclusions: Microalbuminuria may be seen in patients with COPD depending on severity of disease and hypoxemia.

Statistical significance $p$-value

| Age | 0.0003 | Age | 0.02 | Age | 0.0001 |
| BMI | 0.04 | BMI | 0.07 | BMI | 0.06 |
| MRCI | 0.01 | MRCI | 0.01 | MRCI | 0.01 |
| PO2 | 0.04 | PO2 | 0.02 | PO2 | 0.02 |

Table 1. The predictors of urinary albumin/kreatinin ratio in all subjects

PO2 –0.22 0.04 FEV1% –0.12 0.3 BODE index 0.28 0.01

In logistic regression model, the presence of MS showed associations with severity of COPD, PO2, BODE index, PO2 and age.

Table 2. The predictors of presence of MS in all subjects

<table>
<thead>
<tr>
<th>Presence of MS</th>
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<td>Presence of MS</td>
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<td>Presence of MS</td>
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P2231
Chronic mucus hypersecretion in asthma: Relation to smoking status and disease severity
Rekha Chaudhuri1, Mehmet Ekici1, Aydanur Ekici1. 1Department of Chest Disease, Kirikkale University, Faculty of Medicine, Kirikkale, Turkey; 2Department of Chest Disease, Kirikkale University, Faculty of Medicine, Kirikkale, Turkey

Introduction: We investigated levels of microalbuminuria and the factors determining in patients with COPD.

Method: Sixty-six patients with COPD and 40 subjects as control group were included.

Abstract P2230 Table 1. The predictors of MCIRS in all subjects

<table>
<thead>
<tr>
<th>MCIRS</th>
<th>B values</th>
<th>p values</th>
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<tr>
<td>Age</td>
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<td>0.0001</td>
</tr>
<tr>
<td>BMI</td>
<td>-0.19</td>
<td>0.02</td>
</tr>
<tr>
<td>PO2</td>
<td>-0.11</td>
<td>0.3</td>
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Statistical significance $p$-value

<table>
<thead>
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<th>MCIRS</th>
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<tr>
<td>Age</td>
<td>0.40</td>
<td>0.0001</td>
</tr>
<tr>
<td>BMI</td>
<td>0.02</td>
<td>0.04</td>
</tr>
<tr>
<td>PO2</td>
<td>0.34</td>
<td>0.0001</td>
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Chronic mucus hypersecretion was strongly associated with smoking in the whole asthma group (Chi^2=22.8, p=0.001). The proportion of patients with asthma and COPD of different disease severity and smoking status giving a history of chronic mucus hypersecretion is shown in Table 1.
P2233

The role of regional distribution (RD) of body fat mass (BFM) in fat-bone interactions in men with chronic obstructive pulmonary disease (COPD)

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The aim: Evaluation of the relationships between RD of BFM and TNF-α, some hormones and markers of bone metabolism.

Methods: We used DEXA to analyze RD of BF. We determined: serum leptin (L), testosterone free (TF), TNF-α, parathyroid hormone (PTH), beta-crosslaps (beta-CTX) and osteocalcin. We examined 83 COPD pts (40-70 yrs old) and control group – 15 healthy comparable men. The COPD pts were subdivided into 3 groups (GOLD).

Results: Fat mass (FM) in Android region (A) positively correlated with TNF-α (r=0.33, p=0.02) in all pts groups. Trunk and Arms FM were positively related to L (r=0.36 and r=0.35, respectively) in all pts groups. L level exerted negative influence on bone mineral density (BMD) in lumbar spine (r=-0.43, p=0.001), but not at femur necks in total group. We found the positive correlations between beta-CTX and total FM (r=0.33) and FM in A (r=0.32) in all pts group. The total, arms, legs and trunk FM, FM in Android and Gynoid (G) regions were increased in pts with a lower level of TF (p<0.05). Loss of BMD positively correlated (p=0.05) to loss of BMI, A/G ratio, FM in all body regions. PTH, calcium ionized and was inversely related with L level in all pts group. Although these pts had decrease of BMD, BMI was increased (29.4 in pts with osteopenia and 24.7 kg/m2 – with osteoporosis). Lowering of BMD might result from other factors, such as TNF-α and some hormones which are produced by the adipose tissue.

Conclusion: The study of RD of adipose tissue in the patient’s body is more informative than BMI for assessing the likelihood of developing osteoporosis in men with COPD.

P2234

The indices of body composition (IBC) considering the changes of serum TNF-α, hormones and oxygen saturation (SO2%) in men with chronic obstructive pulmonary disease (COPD)

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Aim and objectives: to analyze dynamics of changes of IBC and the relationships between IBC and TNF-α, lepion, L, parathyroid hormone (PTH), testosterone free(TF), markers of bone metabolism, SO2%.

Material and methods: Bone mineral content (BMC), Fat mass (FM) and Lean mass (FFM, excl. BMC) were detected by DEXA. We obtain FMI, FFMI and BMCI indices. We examined 83 male pts aged (40-70 group and control group: 15 healthy comparable men. The pts were subdivided into 3 groups according to severity (GOLD).

Results: The value of FMI was significantly decreased in the 3rd group (17.7 kg/m2) vs. the control (20.3), the 1st and 2nd groups (20.5 and 20.2 respectively). The significant positive correlations were detected between FMI and L, beta-crosslaps and negative one – with TF (r=0.31, r=0.31, r=-0.38 respectively). The TF level was lower (p<0.05) to loss of BML, A/G ratio, FM in all body regions, PTH, calcium ionized and was inversely related with L level in all pts group. Although these pts had decrease of BMD, BMI was increased (29.4 in pts with osteopenia and 24.7 kg/m2 – with osteoporosis). Lowering of BMD might result from other factors, such as TNF-α and some hormones which are produced by the adipose tissue.

Conclusion: The study of RD of adipose tissue in the patient’s body is more informative than BMI for assessing the likelihood of developing osteoporosis in men with COPD.

P2235

Enzymatic activity and clinical parameters in non-cystic fibrosis bronchiectasis: A cohort analysis

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Introduction: Non-cystic fibrosis bronchiectasis (NCFB) is characterized by a vicious cycle of infection, inflammation and enzymatic actions, reinforcing each other and leading to progressive lung damage. We aimed to investigate the enzymatic activity in a NCFB population, to compare with controls and to correlate with clinical parameters.

Methods: 63 patients (27male, 59±18y) with NCFB were recruited and 16 controls (7male, 56±18y), perfectly matched. Each patient was evaluated by spirometry, Leicester Cough Questionnaire (LCQ) and Sputum Colour Chart (SCC). Sputum was induced with hypertonic saline inhalation and sputum cells assessed and in 49 NCFB patients and 12 controls. Total and differential cell count in sputum was assessed and total gelatinolytic activity (TGA), neutrophil elastase (NSE) and MMP-9 were measured.

Results: TGA and NSE were higher in patients vs controls (p=0.04 and p=0.0003) and both correlated with neutrophil count (NSE: p=0.009; r=0.38 and TGA: p<0.0001; r=0.60). Subanalysis of high value TGA showed that NSE accounted for 82% of the activity vs 18% MMP-9 (p<0.0001). There was an inverse correlation between neutrophils and FVC% (p=0.02; r=-0.35) and NSE and FVC% (p=0.04; r=-0.29) in NCFB. No relationship was seen between total LCQ score, LCQ subscores and enzymatic gelatinolytic activity. There was however a significant relationship between the SCC and TGA (p=0.003) and NSE (p=0.01). SCC also correlated with neutrophils (p=0.001).

Conclusion: TGA is significantly higher in NCFB and correlates with indices of infection and inflammation (neutrophils and SCC). The majority of TGA was exercised by NSE (82%) in NCFB. No correlation was seen with radiologic score or LCQ.

P2237

Asthma phenotyping: Correlation between inflammatory phenotype, clinical parameters and associated comorbidities

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Introduction: Cluster analysis revealed 5 clinically different clusters of asthma: mild atopic (1), mild to moderate atopic(2), late-onset non-atopic (3), severe atopic (4) and severe with fixed airflow obstruction (5) (Moore et al, 2009).

Aim: To link differential cell count and associated comorbidities (BMI, smoking, atopy, reflux, sinusitis and bronchiectasis) to 5 clusters of asthma based on clinical features (baseline FEV1, maximal FEV1 and age of onset).

Methods: We retrospectively evaluated clinical records from 140 asthma patients (44% male; 43±14) with induced sputum, recruited from outpatient clinic of the University Hospital Leuven between January 1st 2008 and November 1st 2011 and were free of exacerbation for three months prior to sputum induction.

Results: Cluster 1 accounted for 37%, cluster 2 for 26%, cluster 3 for 14% and cluster 4 for 12%. Cluster 5 was too small for further analysis. Cluster 4 as defined by Moore and coworkers is significantly associated with more neutrophils (median: 72%, interquartile: 66-82%); p<0.02) in induced sputum as compared to the other clusters. Relative number of patients with reflux was highest in cluster 3 (55%) compared to cluster 1, 2 and 4 (29%, 34% and 38%). Presence of sinusitis was equally distributed between all clusters (p=0.95).

Conclusion: Severe atopic asthmatics have a predominant neutrophilic airway inflammation. Patients with late-onset non-atopic asthma have the highest rate of reflux. Previously unrecognized bronchiectasis were detected in 9% of patients.
Background: Human Neutrophil Peptides (HNP) are small molecular weight peptides abundant in neutrophils, which may be released upon activation in the extracellular environment. Nearly absent in the normal lung, HNP have been found increased in airways of patients with neutrophil related inflammatory lung diseases. Recently the presence of HNP has been demonstrated in the lung of current smokers.

Aim: We aimed to assess whether sputum HNP concentrations could be used to trace pulmonary functional impairment during COPD clinical course.

Methods: A consecutive population of 138 smokers with and without COPD was referred to our smoking cessation centre. All participants underwent physical examination, pulmonary function tests; sputum samples were collected at enrolment.

Results: We evaluated 42 symptomatic smokers; 8 individuals with COPD stage 1; 18 subjects with COPD stage 2; 19 individuals with stage 3 disease and 51 patients with COPD stage 4. The HNP sputum concentrations were significantly higher in participants with COPD as compared to symptomatic smokers without airway obstruction (26.6 ± 11.5 μg/ml vs 1.9 ± 0.8 μg/ml; p < 0.0001). Among COPD patients, HNP concentrations were significantly higher in patients with stages 3 and 4 as compared to patients with mild to moderate disease (31.7 ± 8.4 μg/ml vs 12.3 ± 4.8 μg/ml; p < 0.0001). Importantly HNP sputum levels showed a highly significant negative correlation with FEV1 and with FEV1/FVC (r= -0.75, p < 0.000001 and r=0.4, p =0.000003 respectively).

Conclusion: Our findings suggest that HNP, a major product released by activated neutrophils, may have a role in monitoring lung inflammation and may be used to trace airway obstruction during COPD clinical course.