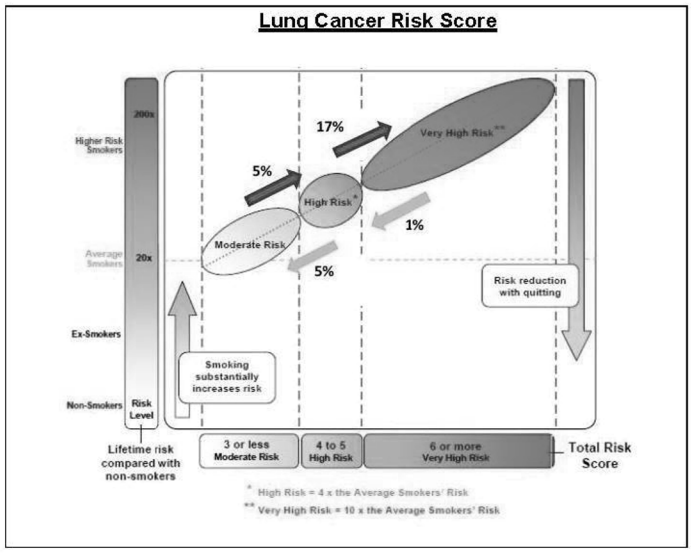
Figure 1. Percentage of screening participants for whom re-assignment of lung cancer risk score category occurred when their individualised SNP genotype data (genetic risk score) was added to the clinical data to derive the overall risk category.



Conclusion: In this feasibility study of a pilot community-based CT screening program we found gene-based risk assessment was of interest to all screening volunteers. As part of risk assessment, personalised SNP data made the greatest contribution to overall assignment of lung cancer risk in association with established clinical variables and significantly improved screening adherence. We conclude that gene-based risk stratification helps assign lung cancer risk and appears to improve adherence to screening. **Keywords:** Lung cancer, risk prediction, single nucleotide polymorphism, adherence to CT screening

POSTER SESSION/ SCREENING AND EARLY DETECTION
MONDAY, SEPTEMBER 7, 2015 - 09:30-16:30

P1.06-004 Common Misconceptions About Lung Cancer Screening: A Nationwide Survey Alexis Cortot[1], Laurent Greillier[2], Chantal Touboul[3], François Eisinger[4], Xavier Pivot[5], Jérôme Viguier[6], Jean-Yves Blay[7], Christine Lhomel[8], Sébastien Couraud[9], Jean-François Morere[10] [1]*Hôpital Calmette, Lille/France,* [2]*Hôpital Nord, Marseille/France,* [3]*Kantarhealth, Montrouge/France,* [4]*Institut Poali Calmette, Marseille/France,* [5]*CHU de Besançon, Besançon/France,* [6]*Hôpital Bretonneau, Tours/France,* [7]*Centre Léon Bérard, Lyon/France,* [8]*Roche, Boulogne-Billancourt/France,* [9]*Hospices Civils de Lyon, Lyon/France,* [10]*Hôpital Paul Brousse, Villejuif/France*

Background: The National Lung Cancer Screening Trial has demonstrated the efficacy of lung cancer screening based on annual low-dose computed tomography (CT) scanning in both former and current smokers. Nationwide lung cancer screening programs are therefore expected to be implemented. Adhesion to these programs will depend largely on public information regarding lung cancer screening. Here, we report on widespread beliefs regarding lung cancer screening in the general population prior to any information campaigns on lung cancer screening. **Methods:** The EDIFICE French nationwide observational surveys, conducted every 3 years since 2005, set out to characterize behaviors related to cancer screening. The 4th edition, EDIFICE 4, was conducted by phone interviews of a representative sample of 1602 subjects aged between 40 and 75 years, using the quota method, from June 12 to July 10, 2014. Attitudes and opinions regarding colorectal, prostate, breast, cervical and lung cancer screening were assessed. **Results:** For 43% of the French population, lung cancer screening is more reassuring than distressing. This figure is lower than those reported for perceptions of other screening programs, including colorectal cancer screening (51%) and breast cancer screening (63% vs. 46.7% for lung cancer screening in the female population). Eleven percent of the respondents (N=162) declared having already undergone a lung cancer screening test. For the vast majority (87%, N=140), this comprised a chest X-ray and for 63%, (N=101) the chest X-ray was not associated with another type of examination. Respondent-declared reasons for not undergoing screening included absence of risk factors (36%), absence of respiratory symptoms (34%), absence of physician recommendations for screening (29%) and futility (11%). Seven percent of current smokers and 32% of former smokers did not undergo screening because they did not consider themselves at risk for lung cancer. Fear of the results pushed 9% of current smokers to avoid lung cancer screening. However, 22% of all respondents and 38% of current smokers declared their intention to undergo a lung cancer screening test in the future. **Conclusion:** The general population has many misconceptions of lung cancer screening. Implementation of nationwide lung cancer screening programs should include information for the general public regarding selection criteria, techniques used and the benefits of lung cancer screening using low-dose CT scanning. **Keywords:** lung cancer screeening, chest X-ray, risk factors

POSTER SESSION/ SCREENING AND EARLY DETECTION
MONDAY, SEPTEMBER 7, 2015 - 09:30-16:30

P1.06-005 The Correlation between Visceral Pleural Invasion in T1a Non-Small Lung Cancer and Lymph Node Metastasis Mitsuhiro Tsuboi, Hiromitsu Takizawa, Daisuke Matsumoto, Naoya Kawakita, Koichiro Kajiura, Hiroaki Toba, Yukikiyo Kawakami, Syoji Sakiyama, Kazuya Kondo, Akira Tangoku *Department of Thoraci,Endocrine Surgery and Oncology, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima City/Japan*

Background: Visceral pleural invasion (VPI) of non-small cell lung cancer (NSCLC) has been recognized as a poor prognostic factor. Peripheral lung cancers often invade visceral pleura, and positive VPI upstages the T category of tumors from T1a to T2a. In addition, it is possible that peripheral lung cancers with positive VPI causes lymph nodes metastasis because of subpleural lymphovascular invasion. In this study, we statistically analyzed the correlation between VPI and lymph node metastasis. **Methods:** 129 patients with NSCLC and a tumor diameter of ≤ 2cm underwent lobectomy or segmentectomy with systematic lymph node dissection in Tokushima University Hospital between January 2008 to December 2013. Excluding 11 patients who were not examined by FDG-PET before the surgery, we reviewed the medical records of 118 patients to obtain information on age, sex, CEA, SUVmax, CT findings, pathological VPI and lymph node metastasis. **Results:** Patient characteristics were as follows: median age of 66.5 (range: 41-86); male/female: 52/66; histologic type adenocarcinoma/squamous cell carcinoma/other: 103/12/3. 13(36.1%) of 36 patients who were suspected to be with visceral pleural invasion by preoperative CT findings were diagnosed with pathological visceral pleural invasion. The mean SUVmax on FDG-PET in patients with VPI was significantly higher than that of patients without VPI(p=0.01). Pathological visceral pleural invasion was identified in 19(16.1%) of 118 patients and associated with high incidence of lymph node metastasis significantly on multivariable analyses (p=0.00). **Conclusion:** VPI is important factors of lymph node involvement in small peripheral lung cancers. It is difficult to identify VPI of peripheral lung cancers by preoperative CT findings. FDG-PET may be useful for diagnose VPI. **Keywords:** visceral pleural invasion, lymph nodes metastasis, FDG-PET

POSTER SESSION/ SCREENING AND EARLY DETECTION
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P1.06-006 Metabolomics by NMR Facilitates the Non-Invasive Diagnosis and Staging of NSCLC Clara Pérez-Rambla[1], Leonor Puchades-Carrasco[1], Eloisa Jantus-Lewintre[2], Francisco García-García[3], Rut Lucas[2], Silvia Calabuig[2], Ana Blasco[4], J Dopazo[3], Carlos Camps[4], Antonio Pineda-Lucena[1] [1]*Structural Biochemistry Laboratory, Centro Investigación Príncipe Felipe, Valencia/Spain,* [2]*Molecular Oncology Laboratory, Fundación Investigación Hospital General Universitario, Valencia/Spain,* [3]*Computational Genomics Department, Centro Investigación Príncipe Felipe, Valencia/Spain,* [4]*Department of Medical Oncology, Consorcio Hospital General Universitario, Valencia/Spain*

Background: Lung cancer (LC) is the most common cause of cancer death worldwide. At present, the diagnosis is primarily based on symptoms and detection occurs at late stages, thus resulting in a very poor prognosis. If the diagnosis could be shifted to early stages, then the overall morbidity for this disease could be dramatically altered. Metabolomics, an analytical platform used in combination with statistical techniques, has been shown to be a very powerful approach for the understanding of biological pathways involved in the onset and progression of diseases. The objective of this study was to identify, using metabolomics by NMR, a set of specific metabolites that could be used for LC screening in the clinical context. **Methods:** Metabolic profiles corresponding to a training set of serum samples from early-stage (n = 66) and advanced-stage (n = 69) NSCLC patients were obtained using ^{1}H-NMR spectroscopy. A matched control set of 71 serum samples from healthy subjects was also included. Furthermore, NMR experiments were also performed for an external validation set consisting of 20 early-stage and 20 advanced-stage NSCLC patients, 13 healthy individuals, and 27 benign pulmonary disease patients (BPD). **Results:** Multivariate statistical modeling of the data revealed that the serum of NSCLC patients, when compared with healthy individuals, exhibit a specific serum metabolic profile (R^2 = 0.931; Q^2 = 0.873) characterized by statistically significant differences in the concentrations of a number of lipids, organic acids and amino acids. The metabolic profiles obtained for NSCLC patients and healthy individuals were also different to that obtained for BPD patients. A similar analysis performed to compare the serum metabolomic profile of NSCLC patients at early and advanced stages of the disease (R^2 = 0.779; Q^2 = 0.592) showed that disease evolution has also a reflection in the metabolic profile of patients. Furthermore, a logistic regression analysis allowed the identification of a specific combination of five metabolites (threonine, glutamine, lactate, choline and methanol) that enables the discrimination between healthy individuals and NSCLC patients with a 77,5% sensitivity and a 76,9% specificity (70% for all non-cancer samples). **Conclusion:** Our results highlight the potential of metabolomics by ^{1}H-NMR for identifying biological pathways involved in the onset and progression of NSCLC, thus providing a sensitive, specific, minimally invasive and easily implementable method in clinical practice for the early diagnosis of NSCLC and for the optimization of risk profile models. **Acknowledgements**: Spanish Ministerio de Economía y Competitividad (MINECO, SAF2011-28350), Centro de Investigación Príncipe Felipe and Fundación Mutua Madrileña for their economic support and Red de Biobancos de Valencia and Bruker BioSpin for technical contributions. This study was also supported by the ISCIII (RTICC, RD12/0036/0025). **Keywords:** Lung cancer, early detection, NMR, metabolomics, biomarker.

