

## ASCO 2009 – C Chung abstract

**Control/Tracking Number:** 09-AB-34946-ASCOAM

**Activity:** Abstract Submission

**Current Date/Time:** 1/6/2009 3:18:18 PM

### **Mass spectrometry profile as a predictor of overall survival benefit after treatment with epidermal growth factor receptor inhibitors in head and neck squamous cell carcinoma**

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**Abstract: Background:** Our previous study has shown that a matrix-assisted laser desorption ionization (MALDI) mass spectrometry (MS) profile in serum or plasma can predict lung cancer patient survival after treatment with epidermal growth factor receptor inhibitors (EGFRI). We examined the ability of this same MALDI-MS profile in plasma or sera to predict for survival benefit of EGFRI in patients with head and neck squamous cell carcinoma (HNSCC). **Methods:** Spectra were obtained in triplicate using MALDI-MS from 314 samples obtained from five HNSCC cohorts treated with; 1) gefitinib (G, n=100), 2) erlotinib and bevacizumab (E/B, n=81), 3) cetuximab (C, n=21), 4) surgery (S, n=78) and 5) palliative chemotherapy (PC, n=34). Each sample was classified into “good” or “poor” outcome groups and overall survival was examined using this MALDI-MS classifier (VeriStrat<sup>®</sup>, Biodesix, Steamboat Springs, CO). **Results:** Successful classification could be achieved in 311/314 (98%) of the samples. In all EGFRI-treated cohorts, the classifier predicted survival benefit while the cohorts without EGFRI-treatment showed no survival difference by log-rank testing (G: p=0.007, HR 0.41, 95%-CI 0.22-0.79; E/B: p=0.02, HR 0.20, 95%-CI 0.05-0.78; C: p=0.06, HR 0.26, 95%-CI 0.06-1.06; and PC: p=0.76, HR 0.88, 95%-CI 0.4-1.97), independent of performance status, age, gender and smoking history. **Conclusions:** This study suggests that the same predictive algorithm for MALDI-MS generated from patients with lung cancer treated with EGFRI is also predictive of survival outcome in HNSCC patients treated with both TKIs and cetuximab, and may allow rational selection of patients most likely to benefit from an EGFRI monotherapy.

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**Author Disclosure Information:** C.H. Chung, None; E.H. Seeley, None; J. Grigorieva, Biodesix, Inc., Myself, Compensated, Senior Scientist; Biodesix, Inc., Myself; W.G. Yarbrough, None; J. Gilbert, None; B.A. Murphy, None; A. Argiris, None; R. Caprioli, None; D.P. Carbone, None; E.E. Cohen, None.

**Topic Category (Complete):** Head and Neck Cancer

**Keyword (Complete):** head and neck cancer ; proteomics ; biomarkers

**Sponsor (Complete):**

**Additional Information I (Complete):**

**Type of Trial:** Correlative

**Research Category:** Translational

**Trial Accrual:** No

**Funding:** Other

**Funder Name:** : Vanderbilt Ingram Cancer Center

**Grant Funding:** No

**Type of Grant:** Not Applicable