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| **Table S1. Detail of Prospective Clinical Trials.** |
| **Clinical Trials** | **Title** | **Radiotherapy** | **Chemotherapy** | **Patients included in this study** |
| **2003.076 (NCT: NA)** | A Pilot Study to Evaluate theImpact of Multiple FunctionalImages and MolecularMarkers on RadiationTreatment Planning andRadiation Outcome and LungToxicity Prediction | Determined by radiation oncologist (EQD2 between64 and 86 Gy in 30 fractions) | Per treating physician | 8 |
| **2006.040 (NCT00603057)** | Using Functional Image andCirculating MolecularMarkers to Predict TumorResponse and Lung Toxicityin Treatment of Lung Cancer | Determined by radiation oncologist (EQD2 between 60 and 96 Gy in 30 fractions) | Per treating physician | 38 |
| **2007.123 (NCT01190527)** | Using FDG-PET AcquiredDuring the Course ofRadiation Therapy toIndividualize AdaptiveRadiation Dose Escalation inPatients with Non-Small CellLung Cancer | 2.1-2.85 Gy per day ≤17.2% NTCP for normal lung (EQD2 between 64 and 92 Gy in 30 fractions) | Carboplatin AUC 2 | 6 |
| **GRU 13-24 (NCT: NA)** | Using Functional Image and Circulating Molecular Markers to Predict Tumor Response and Lung Toxicity in Treatment of Lung Cancer | 2.1-2.85 Gy per day(EQD2 between 60-73.85 Gy) | Carboplatin AUC 2 Paclitaxel 45 mg/m2 | 4 |
| Abbreviations: AUC, area under the (time-concentration) curve; EQD2, equivalent dose in 2 Gy fractions; FDG, fluorodeoxyglucose; NA, not applicable; NCT, National Clinical Trial; NTCP, noninvasive transcutaneous cardiac pacing; PET, positron emission tomography. |

**Figure S1.** Baseline IDO-associated molecular activity and clinical stages. The panel shows individual and mean activity levels for kynurenine (A) and K:T ratio (B) at baseline in stage I-III NSCLC patients. P-values shown were from independent t-tests. Error bars at figures show 95% confidence interval (CI).

 

**\*All P-values were from independent t test.**

 **P = 0.938**

 **P = 0.468**

**P = 0.002**

 **P = 0.806**