was analyzed with non-linear mixed effect (NLME) modeling and non-compartmental analysis approach. The QT/QTc data was analyzed according to ICH E14 guidelines. Relationship between dose and response was investigated using non-linear rule based Formal Concept Analysis (FCA, implemented in Ariana's KEM® software). *Results:* ANAVEX2-73 is metabolized into a pharmacologically active metabolite, ANAVEX19-144. Its pharmacokinetics is linear in the dose range studied and exhibits moderate pharmacokinetics variability. The apparent elimination half-life of the metabolite (21.45 hr) is approximately twice that of the parent drug (10.71 hr). No sex difference in the pharmacokinetics of ANAVEX2-73 was observed. The clearance of the drug is not a function of renal function, and younger subjects clear the drug twice as fast as elderly Alzheimer's disease subjects. ANAVEX2-73 administration does not prolong QTc interval, while ANAVEX19-144 was found to be anti-arrhythmic. A strong relation was observed between ANAVEX2-73 apparent dose and MMSE (Mini-Mental State Examination) response. Drug doses in the upper tertile increase the probability of improved MMSE score 2.1-fold (110%) during 57 weeks. Similarly, higher drug doses increase the probability of improved ADCS-ADL (Alzheimer's Disease Co-operative Study – Activities of Daily Living) score 1.6-fold (67%) during the same period. *Conclusions:* The clinical data from the completed studies enabled a detailed and robust dose-response analysis and the identification of optimal dosing for future studies. The data provides support to further clinical development of ANAVEX2-73 and further clinical studies in several indications are planned or underway. A more complete set of results will be available at the time of the conference.

LBP33: CLINICAL PHARMACOKINETICS AND PHARMACODYNAMICS CHARACTERIZATION OF ANAVEX™2-73 FOR DESIGNING A PHASE 2/3 STUDY IN MILD-TO-MODERATE ALZHEIMER'S DISEASE. Mohammad Afshar[1], Frédéric Parmentier[1], Ene I Ette[2], Emmanuel O Fadiran[3], Christopher U Missling[3] *((1) Ariana Pharma, Paris, France; (2) Anoixis Corp., Natick, MA; (3) Anavex Life Sciences Corp., New York, NY, USA)*

Background: ANAVEX2-73, a selective sigma-1 agonist with muscarinic receptor ligand properties was tested in a Phase 1 study in healthy volunteers and in a Phase 2a study in patients with mild-to-moderate Alzheimer's disease. ANAVEX2-73 demonstrated a favorable safety profile in both studies. The most common side effects across all AE categories tended to be of mild severity, and were resolved with dose reductions that were anticipated within the adaptive dose adjustment design of the Phase 2a study protocol. *Methods:* Clinical data from 54 subjects from the Phase 1 and the Phase 2a