Precision Personalized Therapy: BTK Target Occupancy Assay for Leukemia and Non-Hodgkin's Lymphoma Patients

Bruton's protein-tyrosine kinase (BTK) has emerged as a novel target in the treatment of blood cancers, such as leukemia and Non-Hodgkin's lymphoma, and other malignancies ^(1, 2). Target occupancy is an important factor in the effectiveness of BTK inhibitors (ex. ibrutinib, acalubrutinib, zanubrutinib) and can vary among patients taking the same dosing regimen. Full BTK occupancy (considered >95%) by ibrutinib, for example, is predicted in only 26-51% of patients treated at 140 to 280 mg daily. Inadequate BTK target occupancy can reduce efficacy and potentially drive drug resistance ⁽³⁾. A clinical assay to measure BTK occupancy provides an approach to the evaluation and management of patients, with the goal of selecting the "right" treatment, dose level and frequency to maintain clinical response.

Absolutely quantitate the target occupancy of BTK inhibitors and their active metabolites using advanced LC-MS/MS

Nextcea's clinical assays allow physicians and pharmaceutical sponsors to evaluate dosing requirements for individual patients based on the BTK occupancy of inhibitors and active metabolites.



BTK occupancy

Dose Level Ibrutinib

Target occupancy was similar in patients administered ibrutinib (140 to 560 mg/day). All patients may not require high dosing.

BTK occupancy was low in some patients receiving standard therapy (420 mg/day), These patients may require higher dose.

Select treatment, dosing level & frequency to achieve a clinical

Physicians and pharmaceutical sponsors correlate BTK target occupancy with clinical response (ex. the change in white blood cell count) to select the "right" dose level and frequency to treat individual patients.



About Nextcea, Inc.

Nextcea, Inc. is a drug development service company dedicated to optimizing efficacy and minimizing toxicity in all phases of drug development. Nextcea integrates cross-species biomarker studies with traditional PK/PD and TK/TD. In-house platforms include HPLC/UPLC coupled to mass spectrometry LC-MS and LC-MS/MS (API-6500s and and TripleTOF 6600).

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