Safety, Tolerability, Pharmacokinetics, and Pharmacodynamics of BBT001, a Novel Bispecific IL-4Rα/IL-31 Antibody: Results from the Single-Ascending Dose Portion of a Double-Blind, Placebo-Controlled Phase I Study in Healthy Volunteers and Patients with Atopic Dermatitis

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24th October 2025

ISAD INTERNATIONAL SOCIETY OF ATOPIC DERMATITIS

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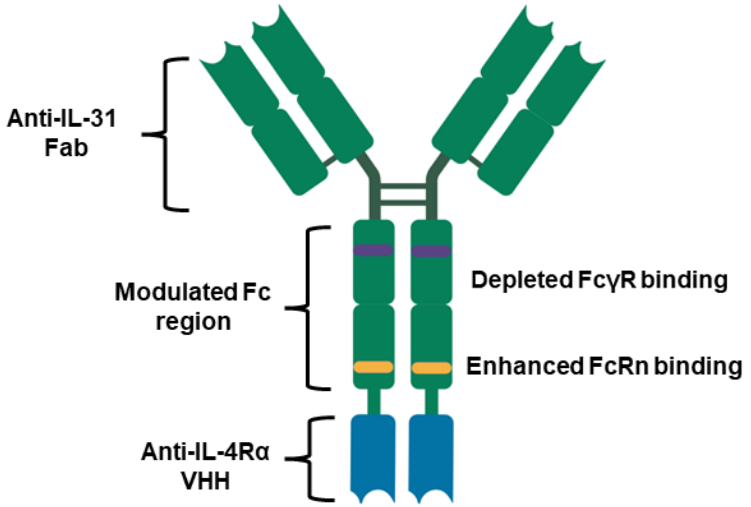
BBT001 (IL-4Rα x IL-31): poised to show best-in-disease profile in type 2 inflammatory dermatology diseases

BBT001

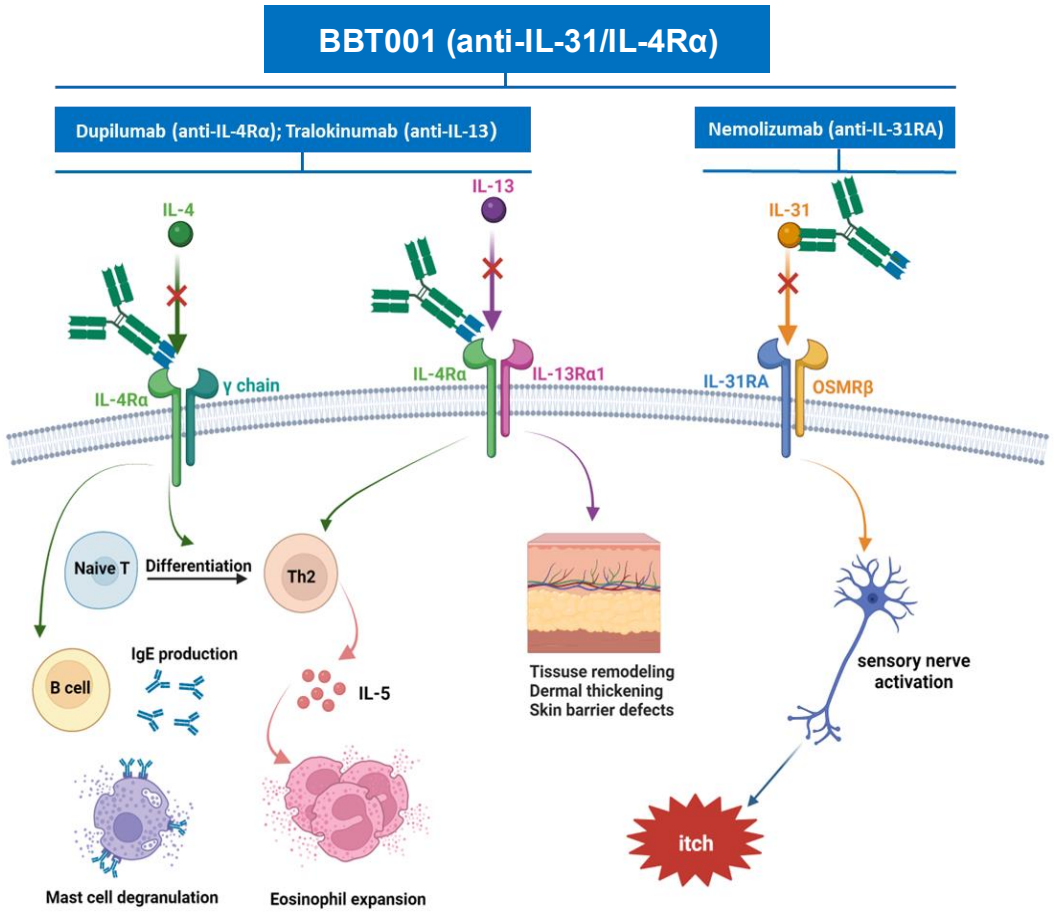


BBT001 is a bispecific IgG1 antibody that targets IL-4Rα and IL-31 in a 2+2 format with high potency

Targeting both IL4Rα and IL31 provides faster onset of efficacy

Fc modifications to increase FcRn affinity and extend drug half-life

Two powerful MOAs in one molecule



Br J Dermatol. 2023 Feb 22;188(3):430-432; 2. N Engl J Med 2020; 383:141-150; 3. J Eur Acad Dermatol Venereol . 2022 Oct;36(10):1820-1825.

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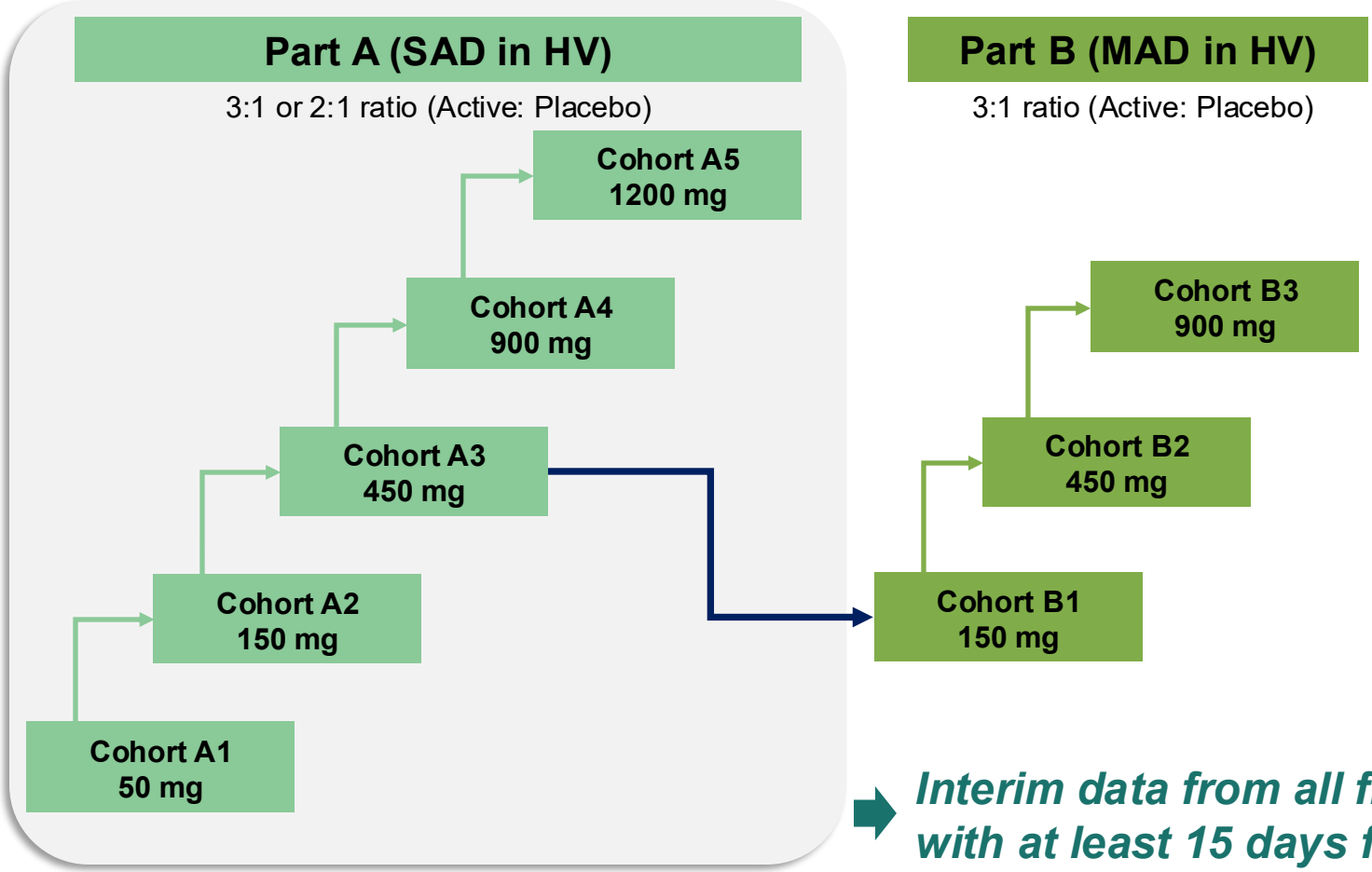
BBT001 Interim Data from Ongoing Phase I study - Single Ascending Dose in Healthy Volunteers

Double-blind placebo-controlled first-in-human study



Primary endpoints

- Safety & tolerability of BBT001

Other endpoints

- PK, PD, Immunogenicity
- T2 biomarkers

Interim data from all five SAD cohorts with at least 15 days follow-up

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Data cutoff of Aug 5th, 2025

Part A Demographics: Generally Well-Balanced Across Placebo and Active Arms

Item	Placebo (N=10)	Cohort A1 50 mg (N=4)	Cohort A2 150 mg (N=6)	Cohort A3 450 mg (N=6)	Cohort A4 900 mg (N=6)	Cohort A5 1200 mg (N=6)
Age (years), Mean (SD)	33.3 (15.68)	30.8 (15.06)	42.0 (11.17)	28.3 (11.0)	31.0 (5.25)	39.2 (16.17)
Female	50%	75%	50%	66.7%	33.3%	66.7%
Caucasian	60%	75%	66.7%	66.7%	50%	66.7%
Weight (kg), Mean (SD)	73.90 (16.74)	76.85 (19.97)	71.52 (9.29)	78.77 (12.58)	71.38 (16.22)	69.53 (6.05)

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Safety Summary: BBT001 is Well Tolerated with a Favorable Safety Profile

N (%)	Placebo (N =10)	Cohort A1 50 mg (N=4)	Cohort A2 150 mg (N=6)	Cohort A3 450 mg (N=6)	Cohort A4 900 mg (N=6)	Cohort A5 1200 mg (N=6)	Overall BBT001 (N=28)
≥ 1 TEAE	5 (50.0%)	3 (75.0%)	6 (66.7%)	3 (50.0%)	3 (50.0%)	3 (50.0%)	17 (60.7%)
≥ 1 Grade 3 TEAE	1 (10.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (16.7%)	0 (0.0%)	1 (3.6%)
≥ 1 Treatment related TEAE	1 (10.0%)	0 (0.0%)	3 (50.0%)	1 (16.7%)	1 (16.7%)	1 (16.7%)	7 (18.4%)
≥ 1 Treatment related Grade 3 TEAE	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

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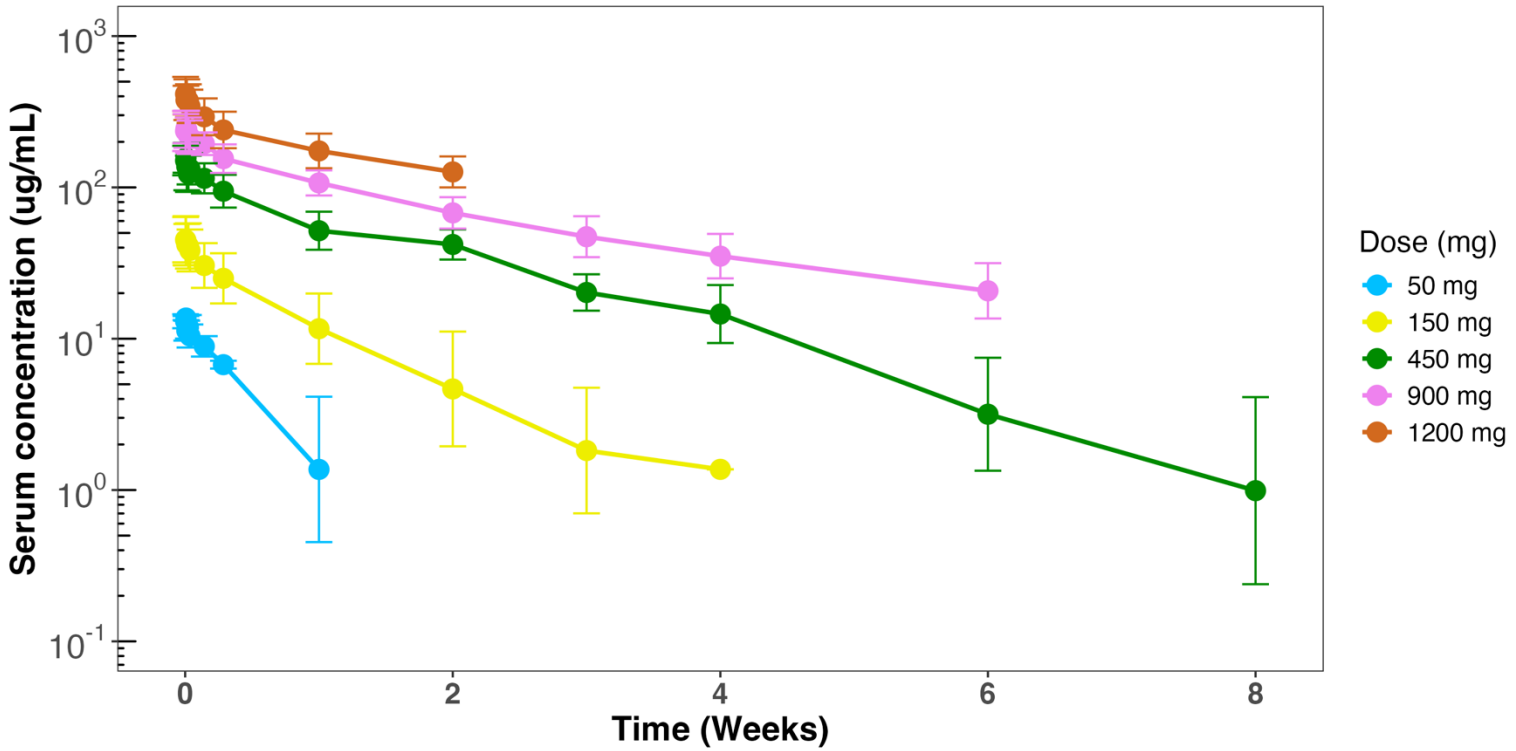
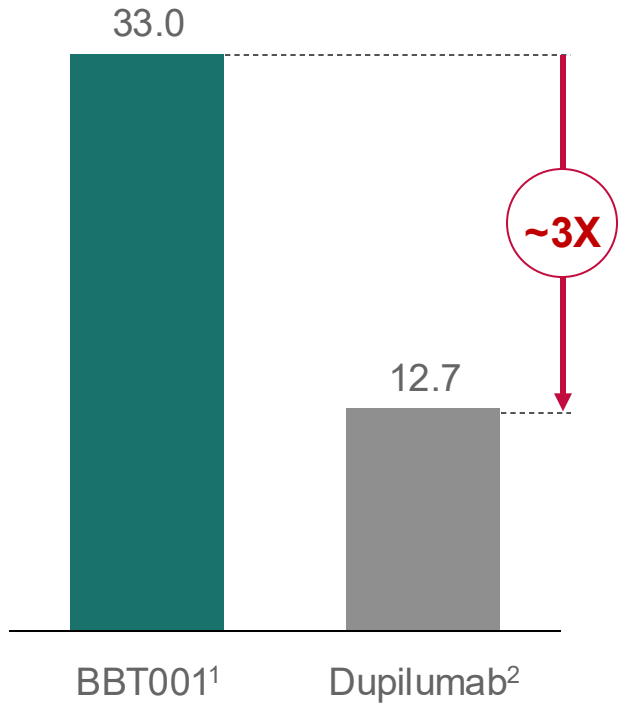
Pharmacokinetics: BBT001 Demonstrated a Best-in-Class PK Profile, Achieving a Half-Life of ~33 Days

BBT001 SAD PK (50/150/450/900/1200mg)



Human Half-Life Comparison (Days)



1. half -life is estimated through the linear elimination part of the model. 2: dupilumab half life was estimated from popPK model in the CP FDA review https://www.accessdata.fda.gov/drugsatfda_docs/nda/2017/761055Orig1s000ClinPharmR.pdf

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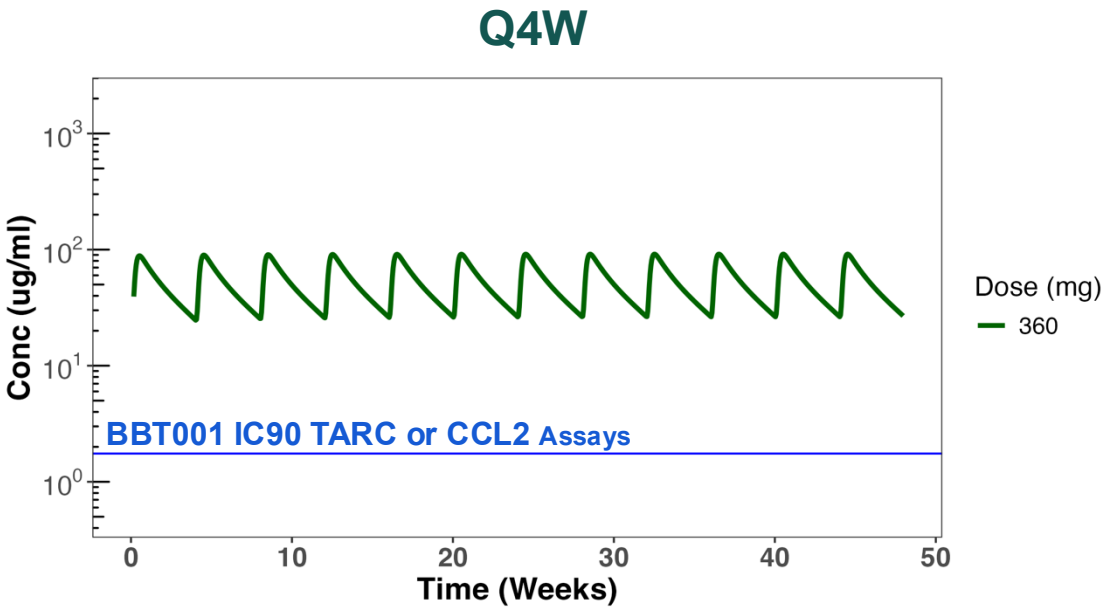
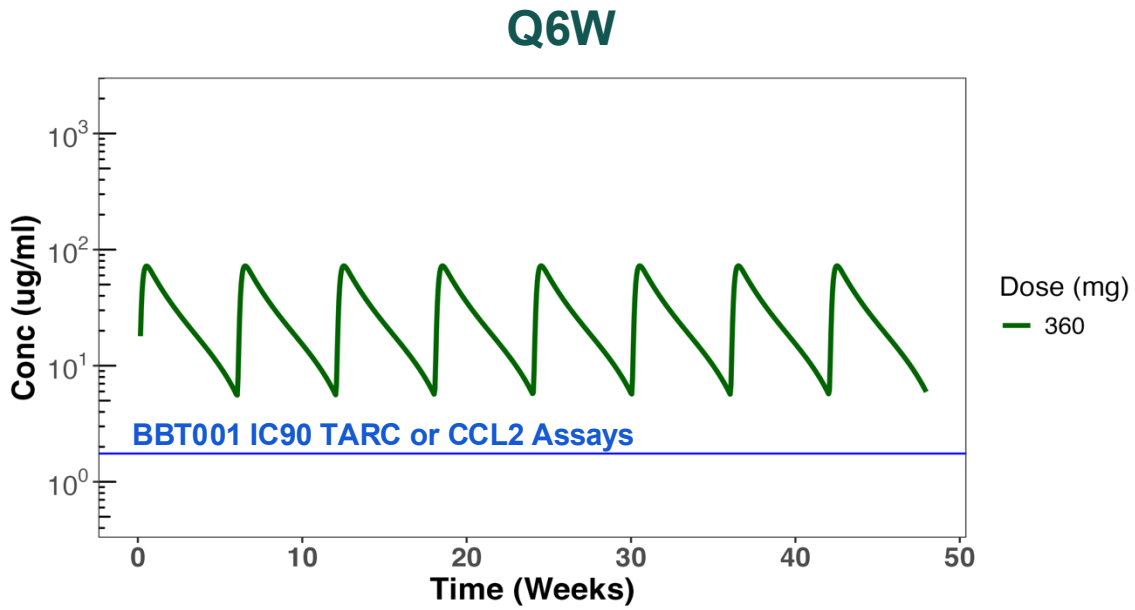
Simulation: ~33 Days Half-life Enabled Flexible Maintenance Dosing Regimens at Q4W or Above with One 360 mg Injection (2ml@180mg/ml)





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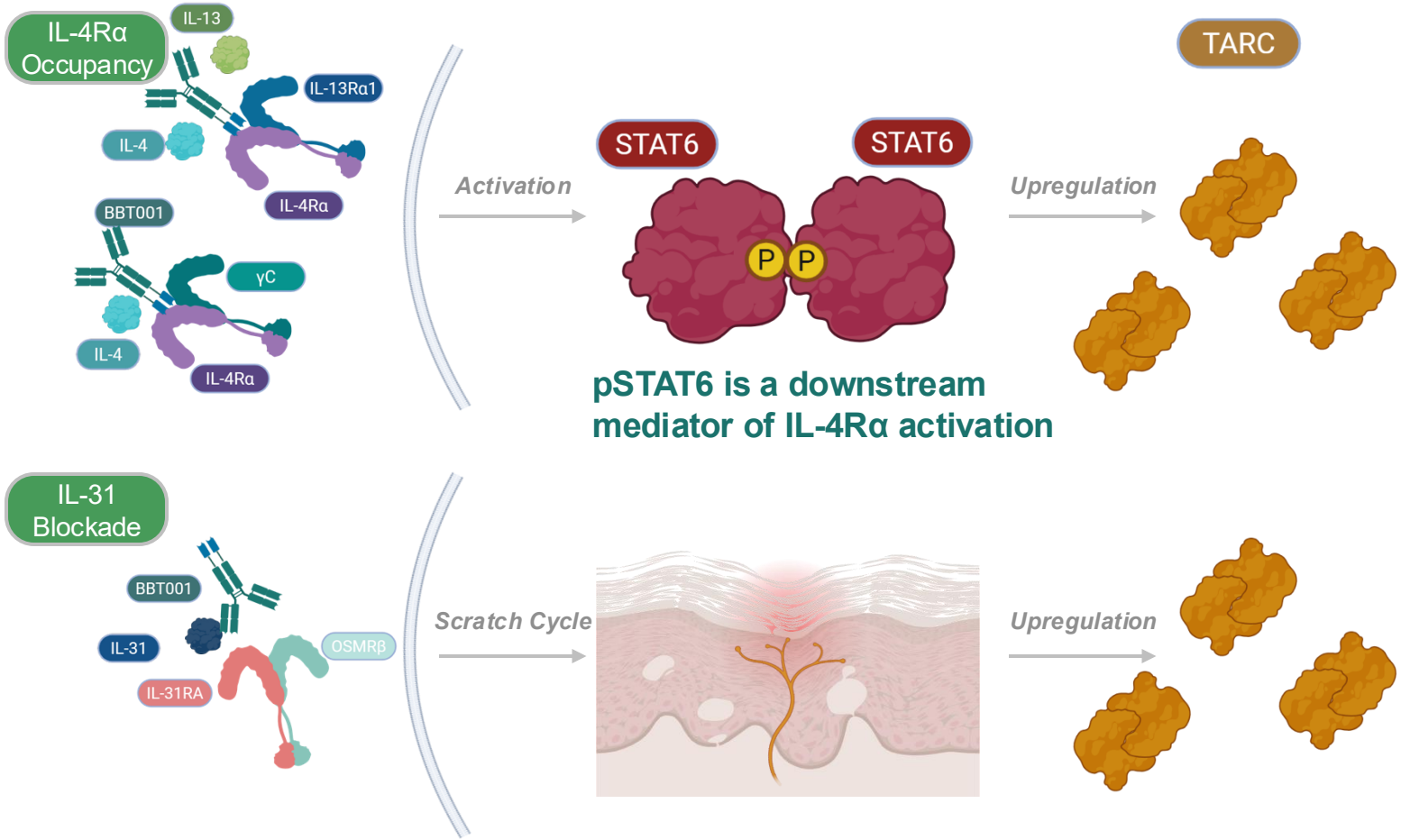
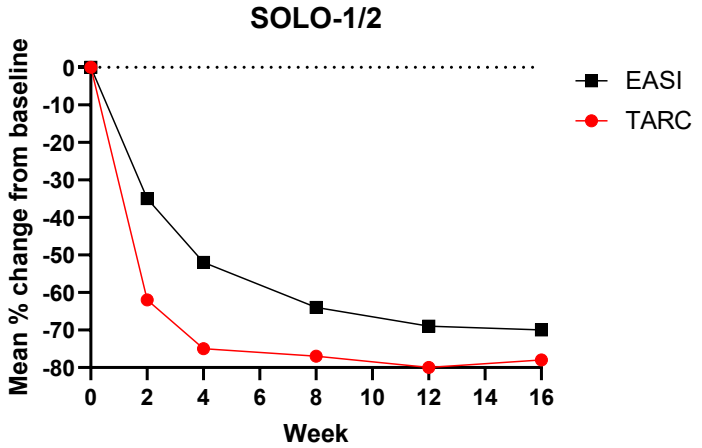
PD & Biomarker: IL-4Rα Receptor Occupancy, pSTAT6, and TARC to Validate MOA, Demonstrate Dual-blocking Synergy and Predict Efficacy



Correlative Reduction of EASI and TARC by Dupilumab Treatment in AD Patients



Adapted from Dupilumab SOLO-1/2 Trials

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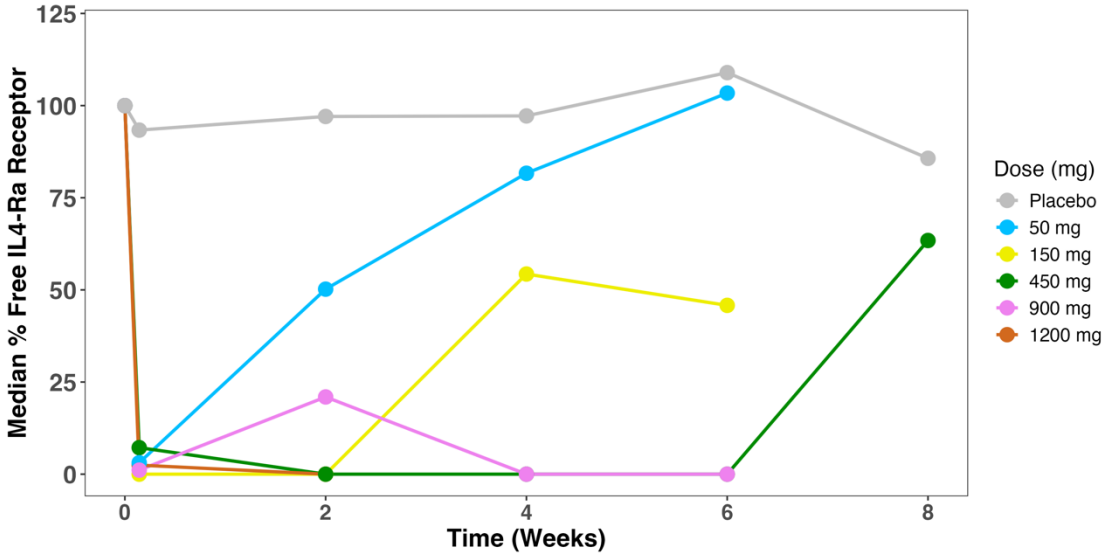
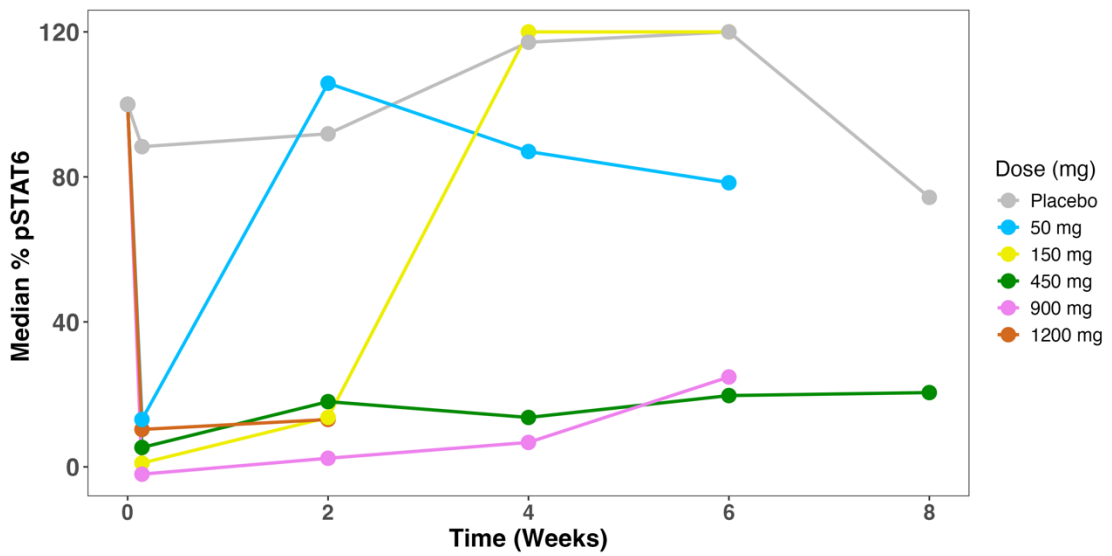
Pharmacodynamics: Rapid, Complete and Sustained IL-4Rα Receptor Binding and pSTAT6 Inhibition ≥8 weeks After a Single Dose of BBT001

BBT001 SAD Part: IL-4Rα Receptor Binding



BBT001 SAD Part: pSTAT6 inhibition



Both RO and pSTAT6 assays are whole blood assays. pSTAT6 assays was ex-vivo simulated with IL-4

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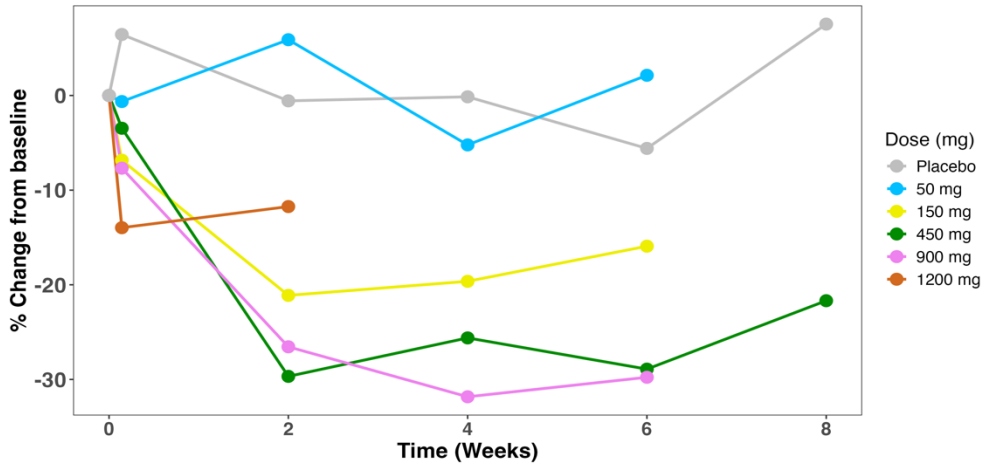
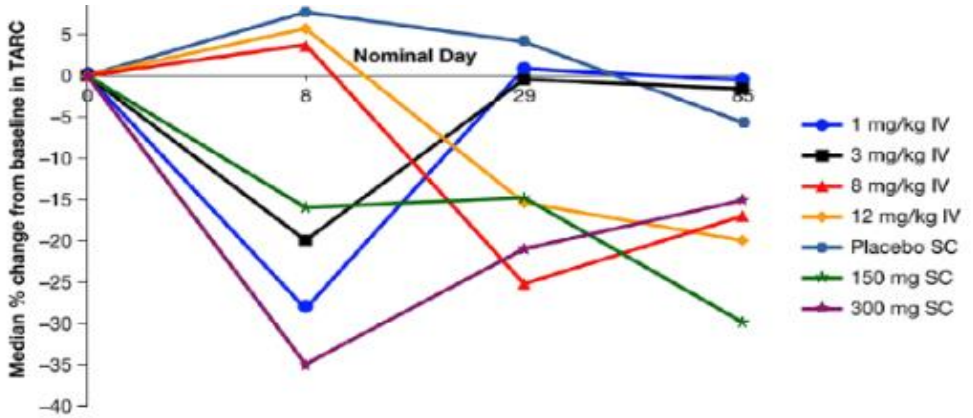
T2 Biomarker: Unprecedently Dose-dependent, Rapid, Deep, and Sustained TARC Reduction After a Single Dose of BBT001

TARC Change by BBT001



	Placebo	BBT001
Baseline Serum TARC (pg/ml), Mean (SD)	299.3 (91.3)	286.0 (152.9)

TARC Change by Dupilumab[1]



	Placebo	Dupilumab
Baseline Serum TARC (pg/ml), Mean (SD)[1]	548.6 (261.9)	638.4 (299.6)

Superior to dupilumab across all dose levels despite a much lower baseline TARC level
Potent TARC suppression is sustained through Week 8

Li Z, Radin A, Li M, et al. Pharmacokinetics, Pharmacodynamics, Safety, and Tolerability of Dupilumab in Healthy Adult Subjects. Clin Pharmacol Drug Dev. 2020;9(6):742-755. doi:10.1002/cpdd.798

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Data cutoff of Aug 5th, 2025

Immunogenicity: BBT001 Shows Low ADA Incidence with Low Titers

102 samples from 28 subjects received BBT001 at IA1

- **10/102 (~9.8%)** samples were tested positive for treatment emergent ADA
- **5/28 (~17.9%)** subjects had treatment emergent ADA – **all in sub-therapeutic doses**
    - 4 in 50 mg dose
    - 1 in 150 mg dose
- No treatment emergent ADA detected in therapeutic dose levels
- No apparent impact on PK or safety
- ADA titers were uniformly low with a range from **<60 to 240**[1]

1: 60 is the minimum required dilution

BBT001 Initial Trial Results Exceed Objectives

GOAL
Confirm safety profile

RESULT
- BBT001 was well tolerated up to **1200 mg**

✓ **ACHIEVED**

GOAL
Demonstrate the Potential of Half-Life Extension Technology in Bispecifics
Predicted ~29 days half-life

RESULT
- Estimated half-life of **~33 days**, exceeding prediction from NHP data
- PK profile supports flexible **dosing intervals of ≥1 month**

✓ **EXCEEDED**

GOAL
Validate Synergistic PD Effects from Dual Targeting

RESULT
- **Rapid, deep, and sustained biomarker effects** (RO, pSTAT6, TARC)
- Effects maintained for **≥8 weeks after a single dose**
- Enables further optimization toward less frequent dosing

✓ **EXCEEDED**

GOAL
Characterize Immunogenicity of Bispecifics

RESULT
- BBT001 shows **low ADA incidence** (~10%) with low titers
- **No observed impact** on PK or safety

✓ **EXCEEDED**

Positive interim Phase 1 results: a de-risking milestone for BBT001 and Bambusa pipeline

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