BIONIZ THERAPEUTICS

Developing Selective, Targeted Multi-Cytokine Inhibitors for the Treatment of Immuno-Dermatology and Immuno-Oncology

Nazli Azimi, PharmD. PhD.
Founder, President and CEO

Anti-Cytokine Therapy Has Been Successful in Treating a Variety of Dermatological Diseases

DUPIXENT® (dupilumab)

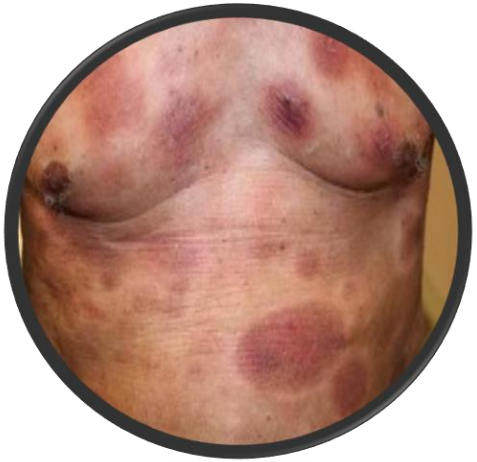
IL-4 and IL-13 inhibitor
(for atopic dermatitis)

Cosentyx® (secukinumab)

IL-17A inhibitor
(for plaque psoriasis)

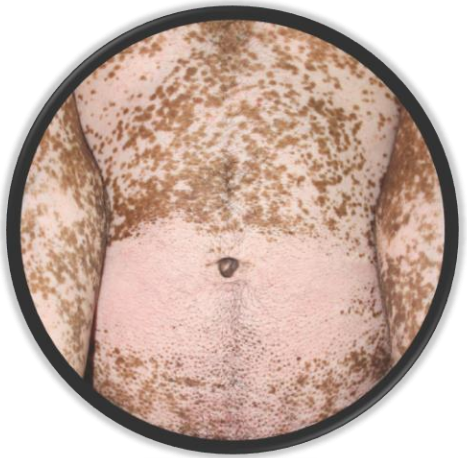
IL-2, IL-9, and IL-15 Are Implicated in Other Skin Diseases

Cutaneous T-cell lymphoma (CTCL)



Alopecia Areata (AA)

Vitiligo



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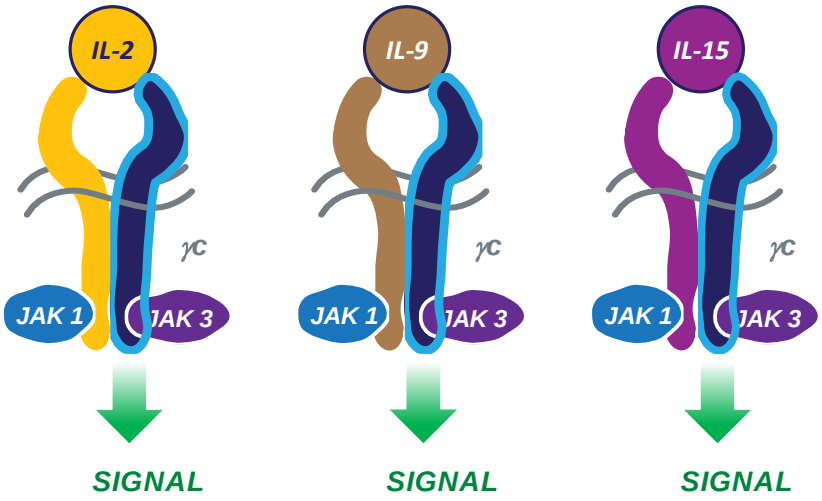
Designing BNZ-1: an IL-2, IL-9, and IL-15 Inhibitor

IL-2, IL-9, and IL-15 share a common receptor, called common gamma-c (γc)



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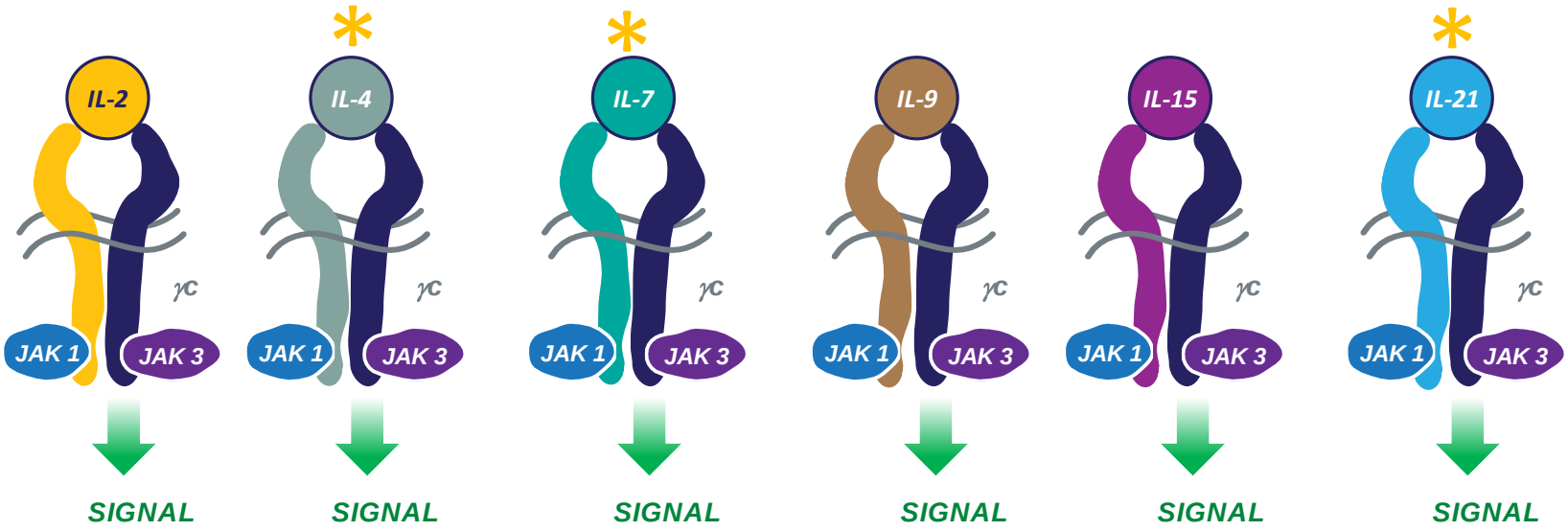
But the same γc receptor is also shared with 3 other cytokines: IL-4, IL-7, IL-21



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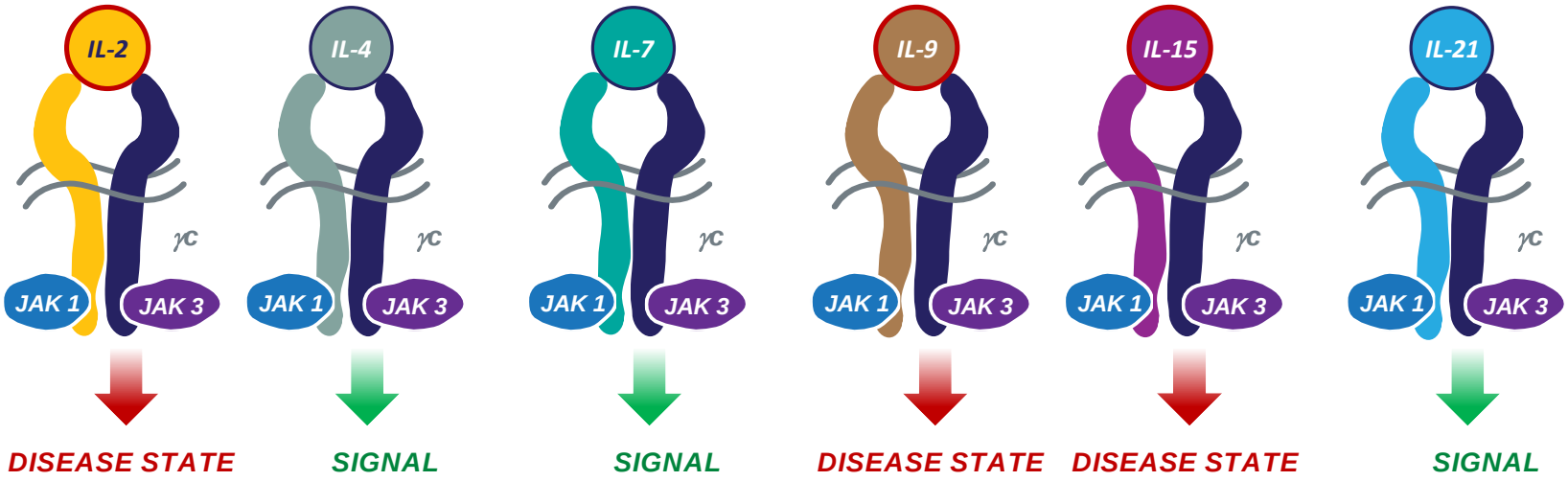
In CTCL, AA, and Vitiligo IL-2, IL-9, and IL-15 are overexpressed and drive the pathology



What is the best strategy to selectively target and inhibit IL-2, IL-9, and IL-15?

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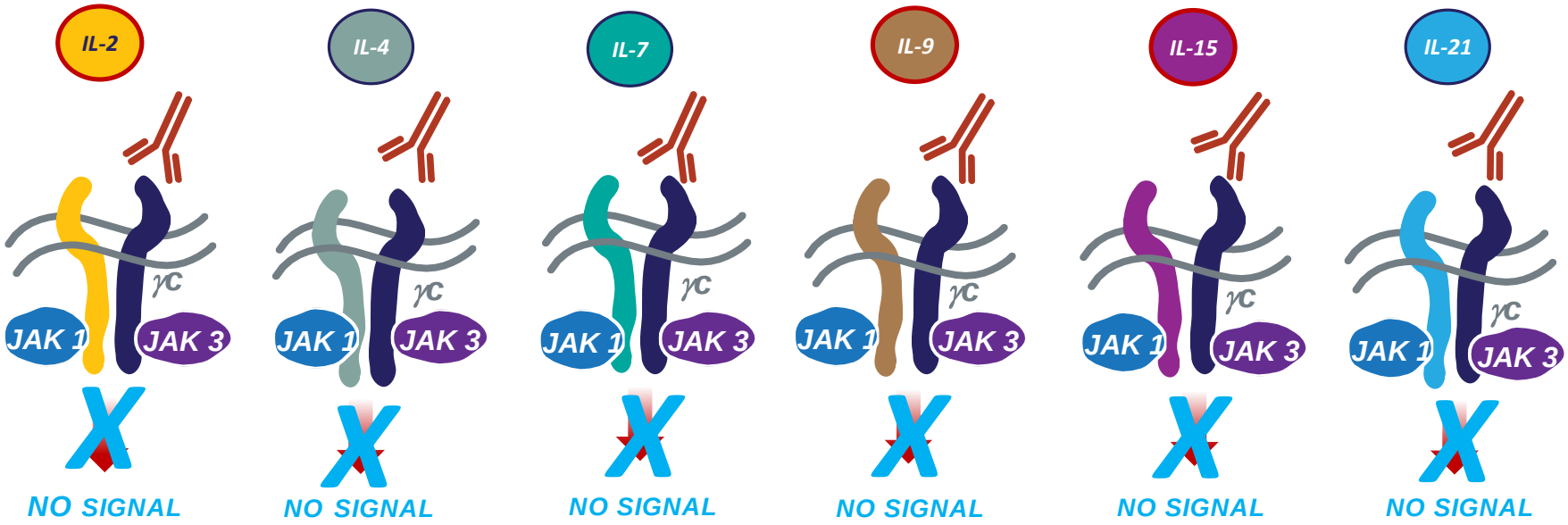
conventional strategies:
1- generating a mAB against the common receptor

Fact: individuals with a natural non-functional mutation in the common receptor have severe-combined immunodeficiency (no B, T, or NK cells)



Inhibition of the γc receptor by a mAB or JAKi is not a preferred approach due to potential serious safety concerns

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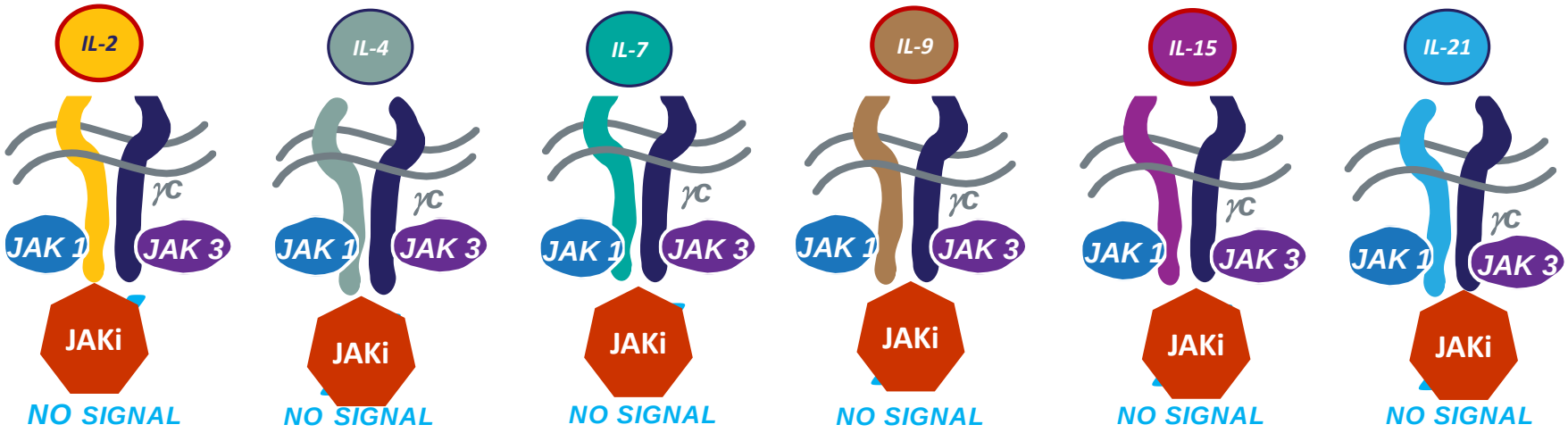
conventional strategies:
1- generating a mAB against the common receptor
2- using JAK inhibitors to block the downstream signaling

Both approaches will result in inhibition of all the six cytokines → potential to develop severe immunodeficiency

Fact: individuals with a natural non-functional mutation in the common receptor have severe-combined immunodeficiency (no B, T, or NK cells)



Inhibition of the γc receptor by a mAB or JAKi is not a preferred approach due to potential serious safety concerns

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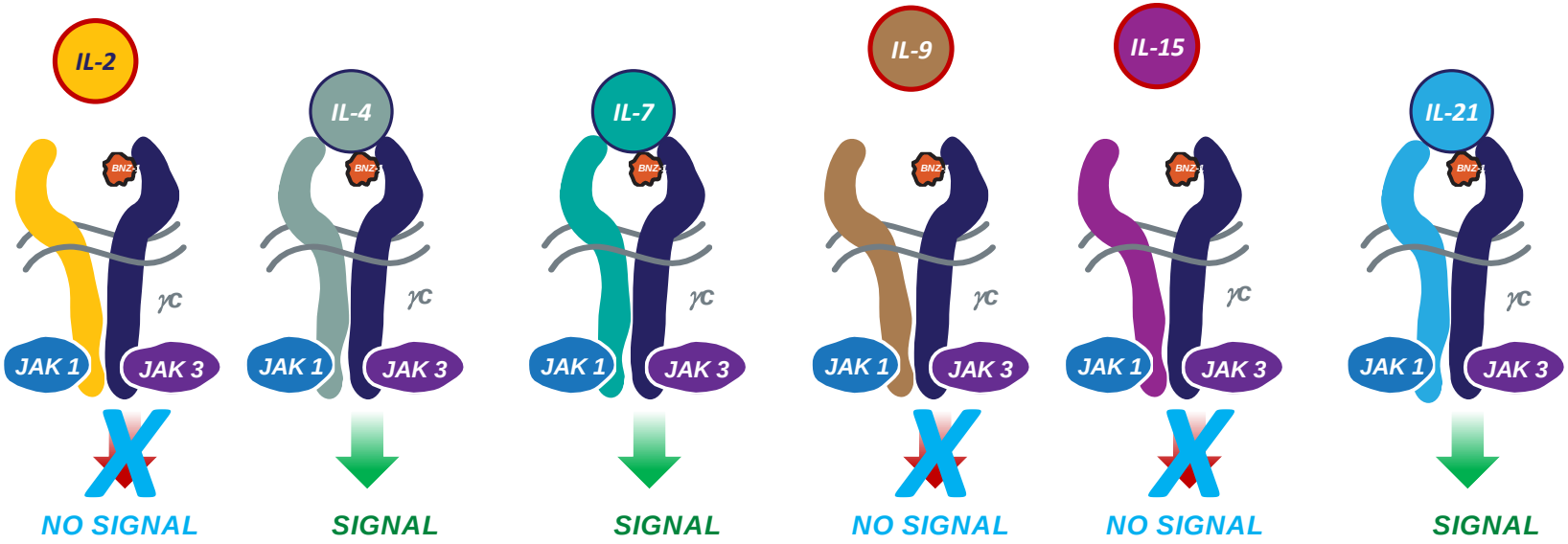
BNZ-1 is a PEGylated peptide that selectively inhibits IL-2, IL-9, and IL-15 and not the other cytokines in this family



BNZ-1 provides a highly targeted inhibition of cytokines that are disease drivers

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BNZ-1 Has Been Tested in Two Clinical Trials: Phase I Study in Healthy Volunteers and Phase I/II Study in CTCL Patients

Phase I trial in healthy subjects:

43 healthy subjects treated with BNZ-1 across studies

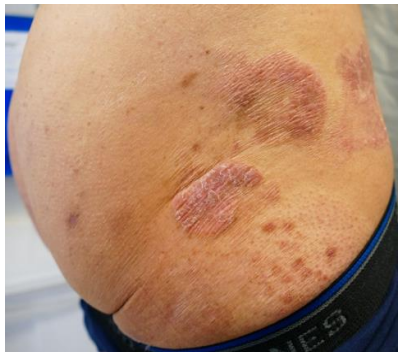
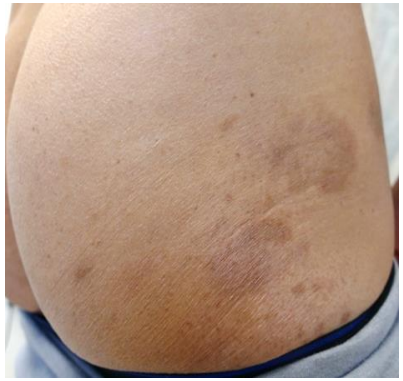
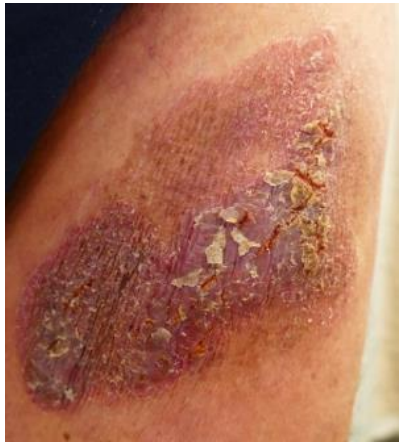
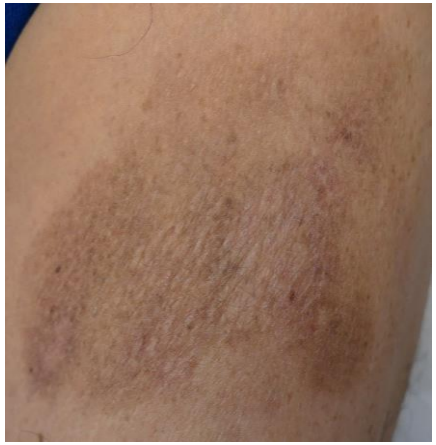
- ✓ No dose-limiting toxicities
- ✓ No serious or severe effects
- ✓ No infusion reactions
- ✓ No clinical lab abnormalities

Phase I/II trial in refractory CTCL patients:

A dose ranging study was completed across 4 doses
(0.5, 1, 2, and 4 mg/kg)

- ✓ No dose-limiting toxicities
- ✓ Well tolerated
- ✓ No infusion reactions
- ✓ Preliminary efficacy was observed in some cohorts allowing for dose expansion

Preliminary Efficacy Data in Refractory CTCL Patients Observed After BNZ-1 Treatment

Baseline	Week 16
	
	

A dose expansion study at 2 mg/kg is ongoing to substantiate the safety and efficacy of BNZ-1 in CTCL patients

- Top line data expected in Q2 2020

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BNZ-1: Pipeline In a Product For An Immuno-Dermatology Franchise

- **BNZ-1 is a selective inhibitor of IL-2, IL-9, and IL-15**
- **BNZ-1 has shown excellent safety profile in healthy subjects and CTCL patients**
- **BNZ-1 has shown preliminary clinical efficacy in highly treated refractory CTCL patients → proof of concept**
- **BNZ-1 has clinical utility in treatment of a number of immuno-dermatological disorders with high unmet medical need**
  - **Cutaneous T-Cell Lymphoma (CTCL)**
  - **Alopecia Areata (AA)**
  - **Vitiligo**
- **BNZ-1 addresses multi-billion dollar markets with no or limited standard of care**

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