ANKYRA

Abstract #: 2593

Quality-of-life in cancer patients treated with anchored interleukin-12 (IL-12) immunotherapy: Results from a first-in-human phase 1 trial of tolododekin alfa

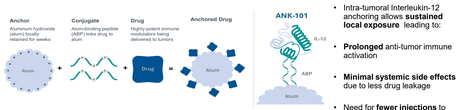
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Background

Anchored immunotherapy is a novel method for retaining high concentrations of anti-tumor drugs in established tumors with limited systemic exposure

Tolododekin alfa (ANK-101) is a first-in-class anchored Interleukin 12 (IL-12) utilizing aluminum hydroxide (Alhydrogel®) as an inert anchor for drug retention within the TME following direct intratumoral (IT) injection (Figure 1)



- Intra-tumoral Interleukin-12 anchoring allows **sustained local exposure** leading to:
- **Prolonged** anti-tumor immune activation
- **Minimal systemic side effects** due to less drug leakage
- Need for **fewer injections** to achieve benefit

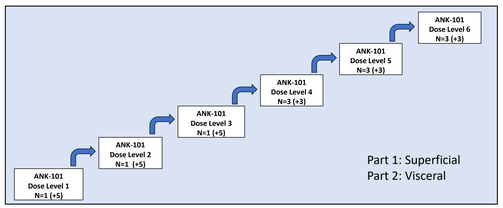
Figure 1: Ankyra anchored immune therapy platform

- Systemic IL-12 has previously demonstrated therapeutic activity in humans but was associated with unacceptable toxicity and mortality.
- ANK-101-001 is a Phase 1 trial studying the safety, PK, PD and preliminary efficacy of ANK-101 monotherapy in patients with superficial (Part 1) and visceral (Part 2) advanced solid tumors
- Quality-of-life (QOL) assessment provided an opportunity to gather baseline QOL data and longitudinally measure patient well-being during drug exposure to identify associations between adverse events and patient well-being

Methods

- Patients were treated with direct intratumoral injection every 3 weeks up to 8 total cycles over 6 months.
- QOL was measured by the validated FACT-G survey, which collects scores across a 27-item questionnaire that measures physical, family/social, emotional, and functional well-being
- Subjects were asked to complete the FACT-G at baseline, every 3 weeks during treatment and at end-of-treatment. QOL scores were evaluated by paired-sample t-tests to evaluate differences in QOL at various time intervals.
- Data cut-off was April 14, 2026

Study Design



Patient Demographics

- 39 of 44 (89%) patients completed a baseline and at least one follow-up FACT-G survey.
- The median age was 68 (range, 36 – 91) and 61% were male. 64% had received 3 or more prior lines of therapy, 73% had received prior immune checkpoint inhibitors (ICI).
- The most common tumor types were melanoma (34%), head and neck (16%) and cutaneous squamous cell carcinoma (9%)

	Statistics	Superficial (N=29)	Visceral (N=15)	Total (N=44)
Gender				
Female	n (%)	12 (41.38%)	5 (33.33%)	17 (38.64%)
Male	n (%)	17 (58.62%)	10 (66.67%)	27 (61.36%)
Age (years)				
	n	29	15	44
	Mean (SD)	65.1 (13.90)	67.1 (10.44)	65.8 (12.73)
	Median	69.0	67.0	68.0
	Q1; Q3	55.0; 75.0	62.0; 75.0	57.0; 75.0
	Min; Max	36; 91	44; 83	36; 91
Race				
Asian	n (%)	0	3 (20.00%)	3 (6.82%)
White	n (%)	26 (89.66%)	12 (80.00%)	38 (86.36%)
Not Reported	n (%)	3 (10.34%)	0	3 (6.82%)
Ethnicity				
Not Hispanic or Latino	n (%)	28 (96.55%)	13 (86.67%)	41 (93.18%)
Not Reported	n (%)	1 (3.45%)	2 (13.33%)	3 (6.82%)
Baseline ECOG				
0	n (%)	16 (55.17%)	7 (46.67%)	23 (52.27%)
1	n (%)	13 (44.83%)	8 (53.33%)	21 (47.73%)
Solid Tumor Type				
Bladder Cancer	n (%)	1 (3.45%)	1 (6.67%)	2 (4.55%)
Breast Cancer	n (%)	2 (6.90%)	0	2 (4.55%)
Colorectal Cancer	n (%)	0	3 (20.00%)	3 (6.82%)
Cutaneous Squamous Cell Carcinoma	n (%)	2 (6.90%)	2 (13.33%)	4 (9.09%)
Esophageal Adenocarcinoma	n (%)	0	1 (6.67%)	1 (2.27%)
Esophageal Cancer	n (%)	0	1 (6.67%)	1 (2.27%)
Head and Neck Cancer	n (%)	7 (24.14%)	0	7 (15.91%)
Melanoma	n (%)	12 (41.38%)	3 (20.00%)	15 (34.09%)
Mucosal Melanoma of the Rectum	n (%)	0	1 (6.67%)	1 (2.27%)
Nasopharyngeal Carcinoma	n (%)	1 (3.45%)	0	1 (2.27%)
Non-Small Cell Lung Cancer	n (%)	1 (3.45%)	0	1 (2.27%)
Oropharyngeal cancer	n (%)	0	1 (6.67%)	1 (2.27%)
adenoid cystic carcinoma	n (%)	0	1 (6.67%)	1 (2.27%)
apocrine adenocarcinoma	n (%)	1 (3.45%)	0	1 (2.27%)
malignant neoplasm of oral cavity	n (%)	1 (3.45%)	0	1 (2.27%)
mucoepidermoid carcinoma	n (%)	1 (3.45%)	0	1 (2.27%)
uterine leiomyosarcoma	n (%)	0	1 (6.67%)	1 (2.27%)
Prior Systemic Therapis				
<= 3	n (%)	9 (31.03%)	7 (46.67%)	16 (36.36%)
> 3	n (%)	20 (68.97%)	8 (53.33%)	28 (63.64%)
Prior IO Therapies				
Yes	n (%)	25 (86.21%)	7 (46.67%)	32 (72.73%)
No	n (%)	4 (13.79%)	8 (53.33%)	12 (27.27%)

ANK-101 exposure

- Average number of cycles received was 4.4 (range, 1 – 13)
- The average cumulative dose of IL-12 received was 1207 µg (range, 8 – 7500)
- Average dose received per treatment cycle was 361.5 µg
- Maximum Tolerated Dose (MTD) for systemic IL-12 given either IV or SC is 0.5 µg/Kg

ANK-101 Related Treatment Emergenet Adverse Events (RTEAEs)

- The most common related treatment emergent radverse events (RTEAE) occurring in more than 10% of patients were: pyrexia, chills, fatigue, myalgia, hypotension and malaise. All were G1 or G2
- There were 7 G3 RTEAE reported in 5 subjects (abdominal pain, AST increased, ALT increased, confusion, neutrophil count decreased, stomatitis and anemia). No TEAE >G3
- Confusion was the only serious adverse event considered possibly treatment related
- There were no significant differences in severity or incidence of adverse events between subjects in the superficial or visceral parts of the study

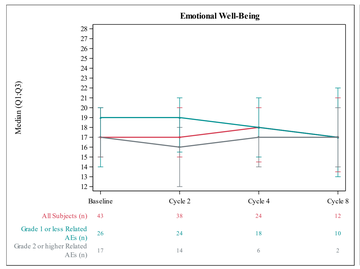
Preferred term	Superficial (N=29) All Grades, n (%)	Visceral (N=15) All Grades, n (%)	Total (N=44) All Grades, n (%)	Superficial (N=29) Grade =>3, n (%)	Visceral (N=15) Grade =>3, n (%)	Total (N=44) Grade =>3, n (%)
Any RTEAE	17 (59)	11 (73)	28 (64)	3 (10)	2 (13)	5 (11)
Most common RTEAEs (in more than 5% of patients)						
Pyrexia	5 (17)	6 (40)	11 (25)	0	0	0
Chills	5 (17)	4 (27)	9 (20)	0	0	0
Fatigue	6 (21)	2 (13)	8 (18)	0	0	0
Myalgia	4 (14)	2 (13)	6 (14)	0	0	0
Hypotension	2 (7)	3 (20)	5 (11)	0	0	0
Malaise	3 (10)	2 (13)	5 (11)	0	0	0
Arthralgia	2 (7)	2 (13)	4 (9)	0	0	0
Dizziness	1 (3)	2 (13)	3 (7)	0	0	0
Headache	1 (3)	2 (13)	3 (7)	0	0	0
Vomiting	2 (7)	1 (7)	3 (7)	0	0	0
Abdominal pain	1 (3)	1 (7)	2 (5)	0	1 (7)	1 (2)
Alanine aminotransferase increased	1 (3)	1 (7)	2 (5)	1 (3)	0	1 (2)
Aspartate aminotransferase increased	1 (3)	1 (7)	2 (5)	1 (3)	0	1 (2)
Confusional state	2 (7)	0	2 (5)	1 (3)	0	1 (2)
Diarrhoea	2 (7)	0	2 (5)	0	0	0
Face oedema	2 (7)	0	2 (5)	0	0	0
Hyperhidrosis	1 (3)	1 (7)	2 (5)	0	0	0
Injection site reaction	2 (7)	0	2 (5)	0	0	0
Nausea	0	2 (13)	2 (5)	0	0	0
Neutrophil count decreased	1 (3)	1 (7)	2 (5)	0	1 (7)	1 (2)
Stomatitis	1 (3)	1 (7)	2 (5)	1 (3)	0	1 (2)

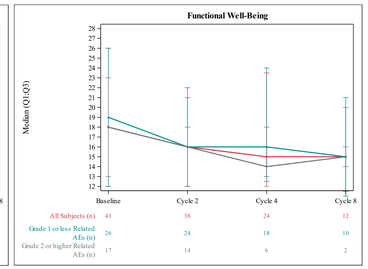
ANK-101 Serious Treatment Emergent Adverse Events (STEAEs)

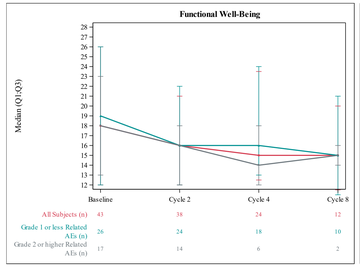
Preferred term	Superficial (N=29) All Grades, n (%)	Visceral (N=15) All Grades, n (%)	Total (N=44) All Grades, n (%)	Superficial (N=29) Grade =>3, n (%)	Visceral (N=15) Grade =>3, n (%)	Total (N=44) Grade =>3, n (%)
Any STEAE	11 (38)	3 (20)	14 (32)	11 (38)	2 (13)	13 (30)
Most common STEAEs						
Tumour pain	2 (7)	0	2 (5)	2 (7)	0	2 (5)
Aspiration	0	1 (7)	1 (2)	0	1 (7)	1 (2)
Back pain	0	1 (7)	1 (2)	0	1 (7)	1 (2)
Bile duct stone	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Confusional state	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Decreased appetite	1 (3)	0	1 (2)	0	0	0
Dysphagia	0	1 (7)	1 (2)	0	1 (7)	1 (2)
Failure to thrive	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Fall	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Haemophagocytic lymphohistiocytosis	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Ileus	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Muscular weakness	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Pneumonia aspiration	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Pneumothorax	0	1 (7)	1 (2)	0	0	0
Skin infection	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Soft tissue infection	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Soft tissue injury	0	1 (7)	1 (2)	0	0	0
Somnolence	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Spinal fracture	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Tracheal obstruction	1 (3)	0	1 (2)	1 (3)	0	1 (2)
Urinary tract infection	1 (3)	0	1 (2)	1 (3)	0	1 (2)

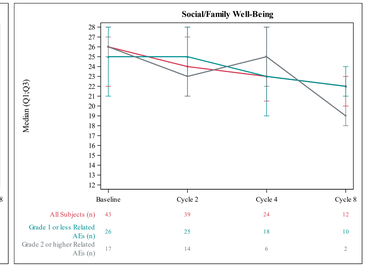
Quality of Life Throughout Study

- At baseline, the median of QOL score was 80 (range, 51-108)
- After two and four cycles, there was no decrease in QOL scores across any of the functional domains
- For patients who developed grade 2 or 3 adverse events, there was a trend towards decreased QOL in social well-being (median 26 at baseline to 22.5 after two cycles; median change, -2.5; p=0.05) and in physical well-being (median 24 at baseline to 20 after four cycles; median change, -5.5; p=0.06 after four cycles)
- Patients who completed all 8 cycles of treatment demonstrated no change in any QOL measure (p range, 0.18-1.00)

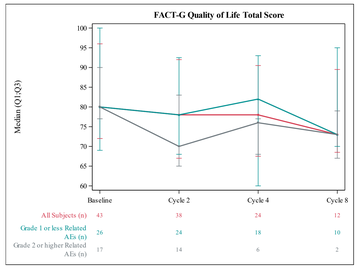








Conclusion



Quality of Life (FACT-G).

FACT-G subscale and total scores remained stable from baseline through C8D1, with no statistically or clinically meaningful changes observed, indicating preservation of patient-reported quality of life during treatment; however, interpretation of later time points is limited by the smaller sample size at subsequent visits.

Acknowledgments

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