Corporate Presentation

January 2019

tlc

Delivering Hope for Life

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TLC's mission to fulfill unmet medical needs presents a compelling investment opportunity

- ✓ **Dual-listed** (Nasdaq: TLC & TWO: 4152)
- ✓ **Dedicated management** team with significant experience in liposomal science
- ✓ **Proprietary lipid technology platforms** conceiving four lead product candidates in pain management, ophthalmology, and oncology:
  - **BioSeizer™** sustained release technology with complete pharmacokinetic (PK) control designed for immediate onset and prolonged retention
    -  **TLC599** 6-month dexamethasone intraarticular injection
      Pivotal trial 1H19
    -  **TLC590** 72-hour ropivacaine post-operative injection
      Phase I/II topline data readout 1Q19; Phase II initiated
    -  **TLC399** >6-month dexamethasone intravitreal injection
      Ph II trial ongoing
  - **NanoX™** active drug loading to alter systemic exposure, reduce dosing frequency, and improve efficacy due to tissue-targeted delivery
    -  **TLC178** liposomal vinorelbine
      Rare Pediatric Disease Designation and Orphan Drug Designation by FDA
      Phase I/II in adults ongoing
- ✓ Eligible for streamlined **505(b)(2)** regulatory pathway for expedited approval
- ✓ Strong intellectual property: **114 patents worldwide** - 50 issued / 64 applications

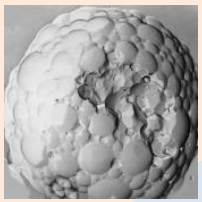
Experienced and dedicated management team with extensive drug development know-how

Name and Title	Experience	Prior Experience
Keelung Hong, PhD *Founder, Chairman, CEO*	>20 years research at UCSF Cancer Research Institute, biopharm consultant **Co-inventor, NanoX**	HERMES BIOSCIENCES, UCSF
George Yeh, MBA *President*	Joined TLC in 2002 CFO, Hermes Biosciences AsiaWired Group, General Bank,	HERMES BIOSCIENCES, GBC GENERAL BANK OF CANADA
George Spencer-Green, MD *CMO*	Vice President, Biosimilars, C. Pfizer Inc. Chairman and CEO, Abbott International, USA	Pfizer, Abbott
Nicole Lin, MBA *CFO & Vice President*	MA Labs Inc., NextGen Communications, Taiwan Securities Company	MA-LABS
Yunlong Tseng, PhD *Research and Development*	Founding member of R&D team; 19 publications on liposome research **Co-inventor, NanoX**	National Taiwan University
Wenji Chen, PhD, MBA *Corporate Development*	>25 years experience at GlaxoSmithKline as head of Worldwide Business Development	gsk
Hung Wei Chih, PhD *CMC*	>13 years at Genentech/Roche as head of Product Quality & Development	Genentech
Sheue Fang Shih, PhD *Product Development*	Joined TLC in 2002 >15 years drug development experience **Inventor, BioSeizer**	National Taiwan University
Wendy Wu, PhD Clinical Affairs	>16 years experience at Exelixis, Pfizer, Ionis, Prometheus, and Amylin; CCRP	Pfizer
Carl Brown, PhD *Medical Sciences*	>15 years clinical development and medical research experience in biotech & pharma at Twi Biotechnology, Amylin	AMYLIN PHARMACEUTICALS
Cynthia Lin *Clinical Operations & Development*	>19 years in pharma; >14 years in global clinical research management at Quintiles	QUINTILES
Terry Tai, MD *Portfolio & Strategy*	>10 years regulatory science experience as medical reviewer and consultant at Taiwan Center for Drug Evaluation	FDA
Bella Kuo *Quality Assurance*	>19 years pharma project management experience at PharmaEngine, TTY Biopharm	TTY BIOPHARM

Board Member	Affiliation
Keelung Hong, PhD *Chairman*	tlc
Hong-Jen Chang, MD	YFY 上智生技創業投資股份有限公司
Anupam Dalal, MD, MBA	ACUTA CAPITAL PARTNERS, LLC
May Kang, MBA	**Del Mar Technologies**
Beatrice Liu, PhD	BDO
Tom Chen, PhD	MERCK
Chan Lee	**Xiang Investment Company**
Moun-Rong Lin, MBA	H&Q Asia Pacific

Lipid-based drug delivery platforms designed to create innovative products

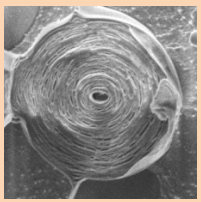
Sustained Release



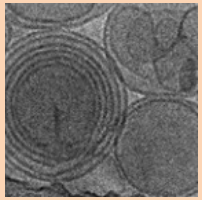
2011
Pacira
Exparel

TLC599

TLC590

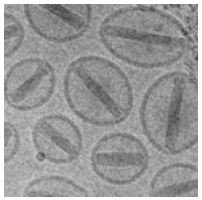


TLC399

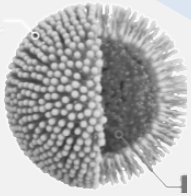


BioSeizer

- Controlled density of multi-layers for immediate & sustained release
- Ability to deliver biologics or small molecules
- Fully biodegradable components
- Sterile filtration at the near-end stage instead of entirely aseptic process
- Possibility for robust scale-up

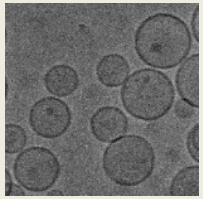


1995
Sequus/Alza/J&J
Doxil



2015
Hermes/Merrimack/Ipsen
Onivyde

NanoX



TLC178

- More options for payload selection
- Greater stability for longer shelf life
- Prolonged circulation
- Efficient particle size for enhanced delivery to tumor site
- Reduced dose frequency
- Applied with >50 compounds
- Robust, scalable & replicable manufacturing

Targeted Delivery

2015 FDA Liposome Guidance

A robust pipeline with pivotal stage trials planned in the next two years

Program	Preclinical	Phase I	Phase II	Phase III	Anticipated Milestones
Pain Management					
TLC599	Osteoarthritis pain				*Pivotal trial initiation 1H19*
TLC590	Post-op pain				*Ph I/II topline data 1Q19*
Ophthalmology					
TLC399	Macular edema[1]				*Ph II LPI 2H19*
Oncology					
TLC178	Adult advanced malignancies/ STS[2] Pediatric RMS[3]				*Initiate Ph I/II for pRMS after adult dose found (2019)*

[1] The Phase II clinical trial of TLC399 has been placed on a temporary recruitment pause by an independent safety monitoring committee in order to make a comprehensive assessment of optimal dose group(s) in the trial. The optimal dose group of 0.6mg DSP with 50mM PL in 50µL solution was selected in August 2018, and we expect to resume recruitment after the study protocol amendment is implemented.
[2] Soft tissue sarcoma (STS); Orphan Drug Designation (ODD)
[3] Pediatric rhabdomyosarcoma (RMS); designated Drug for Rare Pediatric Disease (RPD)

Osteoarthritis (OA) Pain Program

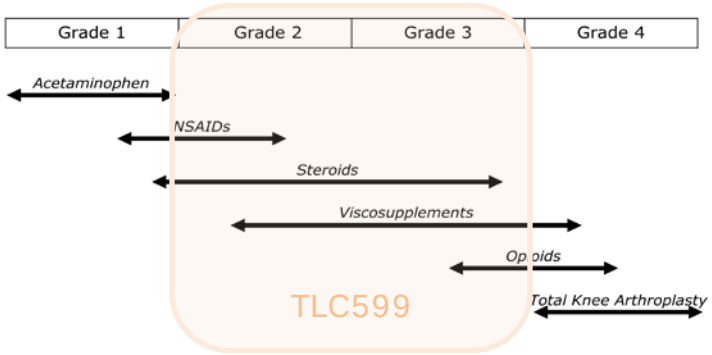
TLC599: BioSeizer sustained release dexamethasone sodium phosphate (DSP) intraarticular injection for OA pain

TLC599 target product profile

Fast acting, long lasting, low toxicity non-opioid intraarticular injection for OA

Current treatment landscape for OA

- Estimated **30.8 million OA patients** in US[1]
- Estimated **20%** of people >65 years will be **at risk for OA** by 2030[2]
- Treatment for moderate degeneration knee OA include NSAIDs, steroids, viscosupplements (hyaluronic acid), and opioids



Our strategic solution: TLC599

- Designed for prolonged duration up to 24 weeks with pain relief within 3 days
- Minimized cartilage damage and toxicity
- Improved drug retention in joint
- Flexibility of needle size to allow for future expanded indications (small joints)

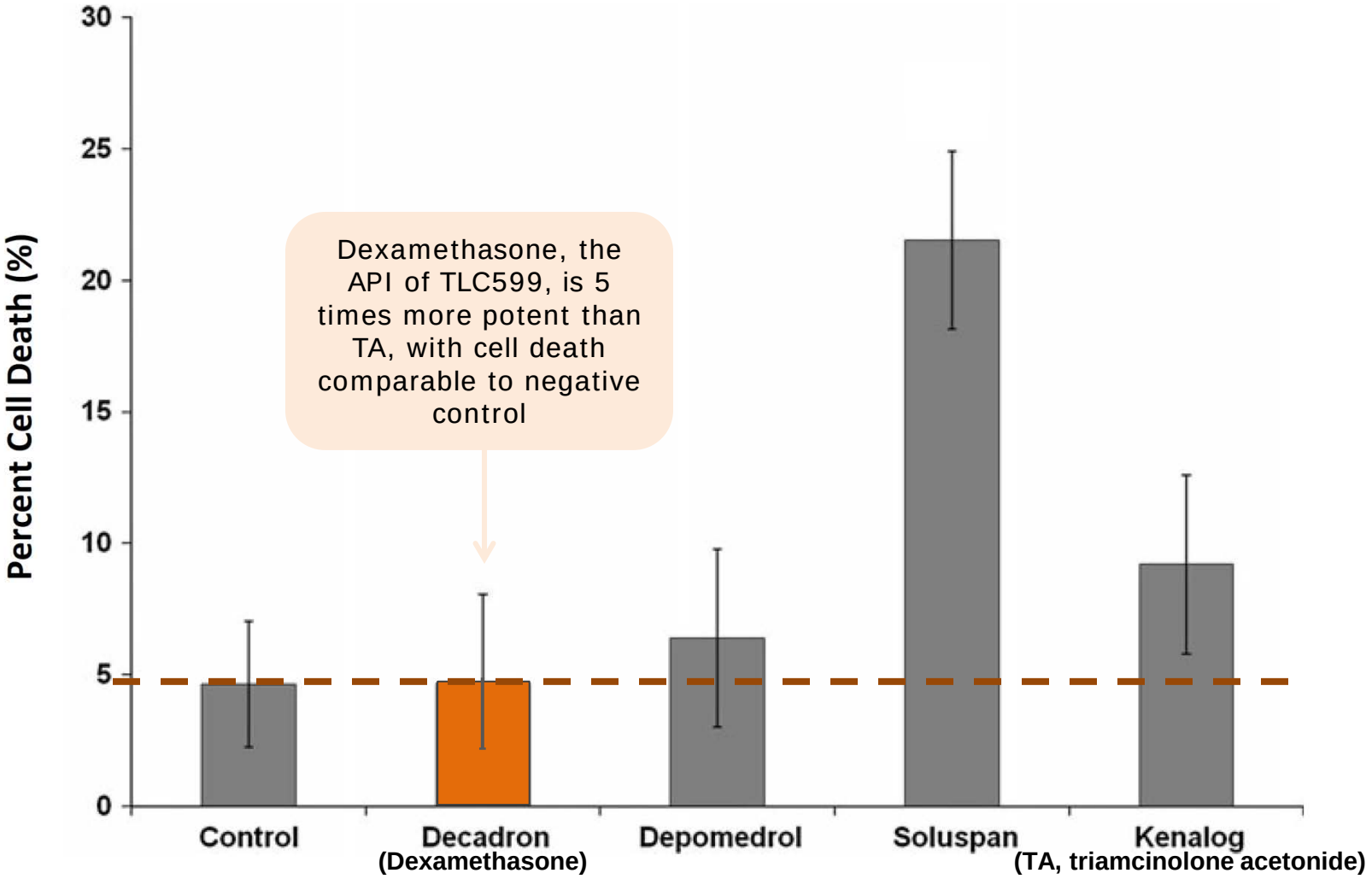
TLC599 development stage

- Randomized, double-blind, placebo-controlled Phase II trial complete; **met primary and key secondary endpoints**
- **EOP2 meetings: CMC complete / clinical scheduled 1Q19**
- Planned **Pivotal trial initiation 1H19**

[1] Arthritis Foundation. Arthritis By the Numbers / Book of Trusted Facts & Figures. [2] National Institutes of Health. FACT SHEET – Osteoarthritis., 2010 [3] Intra-articular steroid injections for painful knees. Can Fam Physician 2004;50:241-248. [4] State-of-the-Art management of knee osteoarthritis. World J Clin Cases 2015; 3(2): 89-101. [5] The chondrotoxicity of single-dose corticosteroids. Knee Surg Sports Traumatol Arthrosc. 2012 Sep;20(9):1809-14.

In vitro study of human chondrocytes

TLC599's API dexamethasone caused the least cell death among steroids



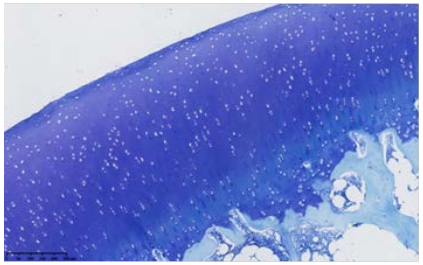
Source: Dragoo et al. Knee Surg Sports Traumatol Arthrosc (2012) 20:1809–14.

Preclinical *in vivo* study – chondrotoxicity

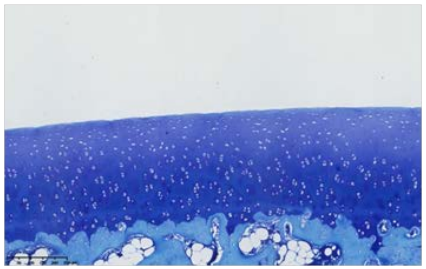
TLC599 is cartilage sparing compared to ER TA

Proteoglycan Staining Study in Beagles
Day 30

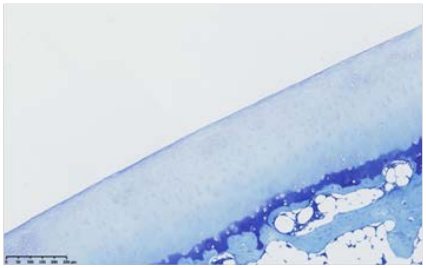
Saline



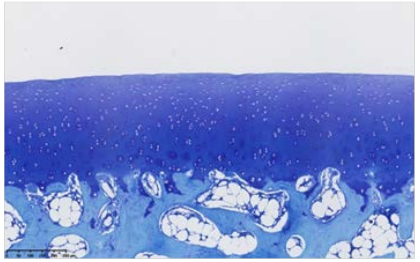
TA 2.1mg

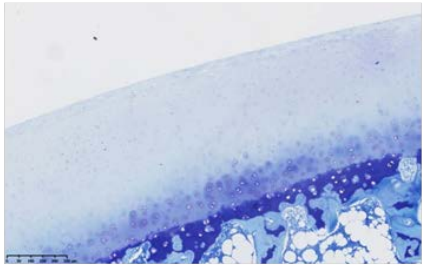


ER TA 2.1mg

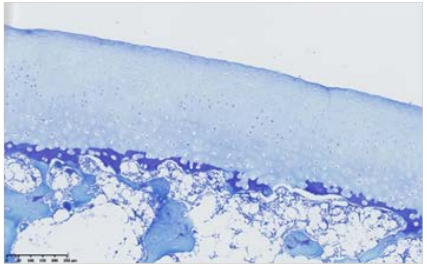


TLC599 12mg
Equivalent to 60mg TA





TA 18.75mg



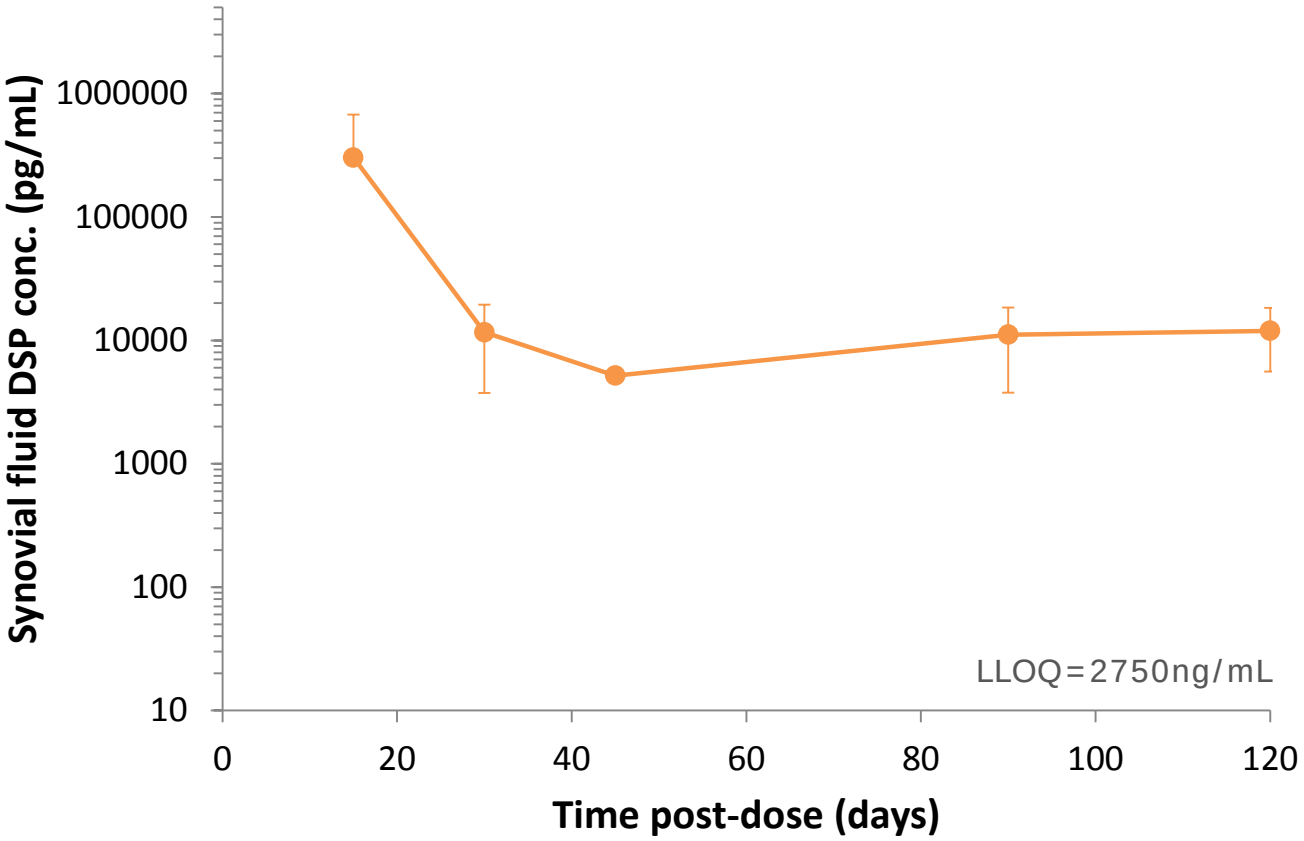
ER TA 18.75mg

Darker color = more staining = more proteoglycan presence = less cartilage damage

TA = triamcinolone acetonide / ER TA = extended release triamcinolone acetonide

Preclinical *in vivo* PK study

TLC599 demonstrated sustained drug levels in dog joints for 120 days

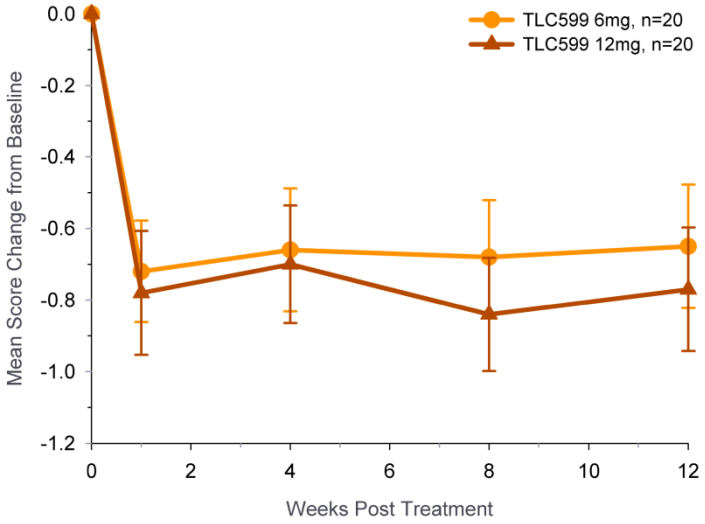


TLC599 was intraarticularly injected into dog knee joints (n=4 dogs). Synovial fluid was collected for DSP concentration analysis.

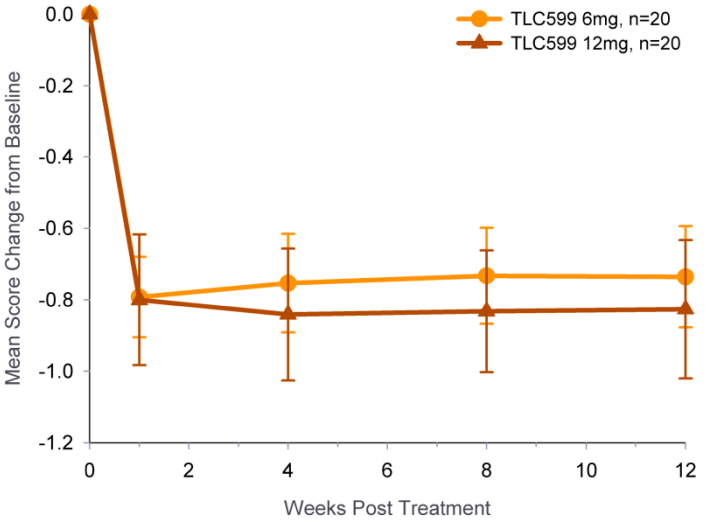
TLC599 Phase I/II clinical trial

WOMAC Pain/Function and VAS showed sustained reductions in pain through 12 weeks

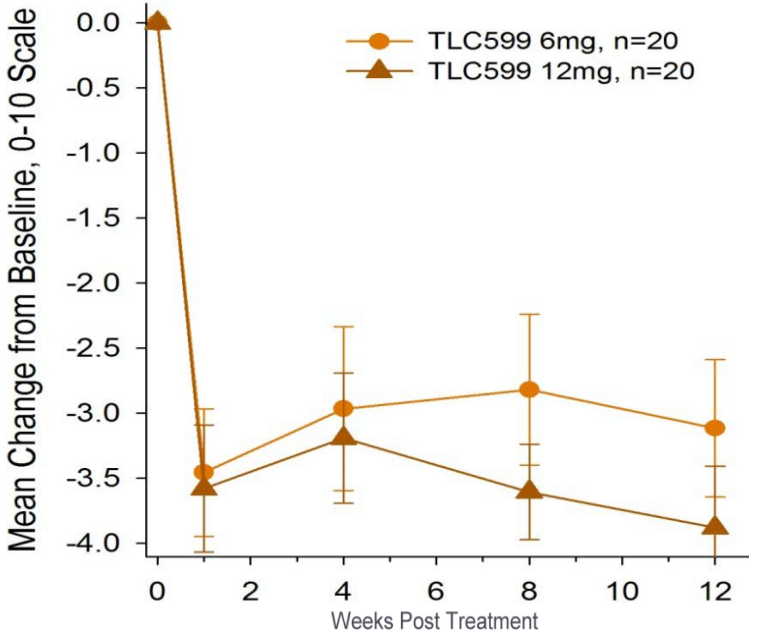
Phase I/II WOMAC[1] Pain (0-4)



Phase I/II WOMAC Physical Function (0-4)



Phase I/II VAS Pain[2]



- Fast max onset within 1 week
- Sustained reductions in pain through 12 weeks

[1]Western Ontario and McMaster Universities Osteoarthritis Index [2]Visual Analog Scale

Design and demographics

Placebo (saline) IA injection

TLC599 **12mg** IA injection

TLC599 **18mg** IA injection

TLC599 12mg significantly reduced pain through week 12 (WOMAC pain. p=0.0027)

No additional benefit seen with 18mg

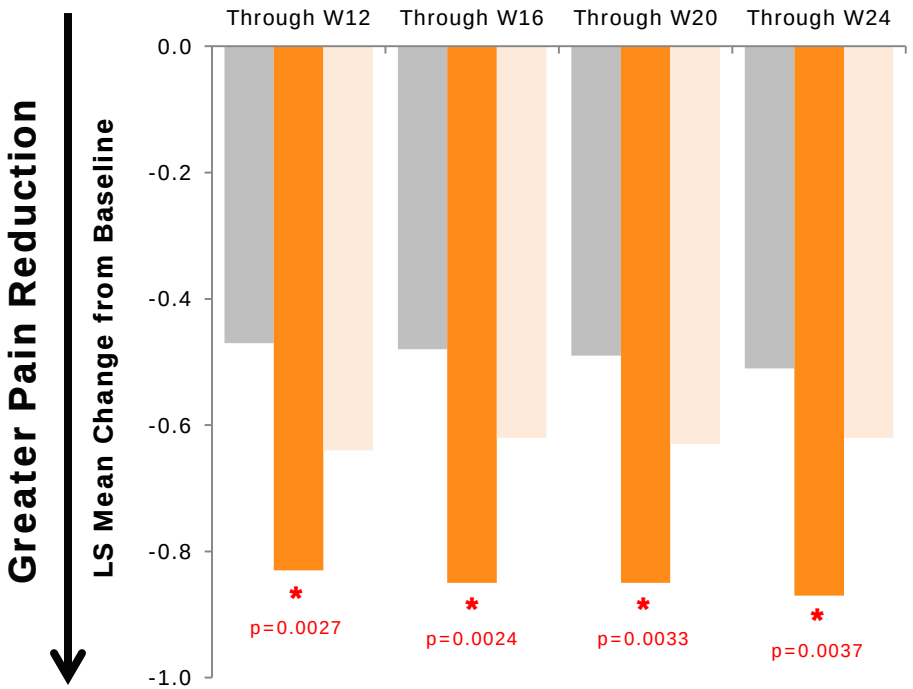
Data from 12mg presented as optimal dose

	Placebo n=25	TLC599 12mg n=26	TLC599 18mg n=24
Age			
Average	64.8 (8.45)	63.9 (9.07)	62.9 (8.80)
≥66	11 (44.0%)	10 (38.5%)	9 (37.5%)
Gender			
Male	28%	42.3%	29.2%
Female	72%	57.7%	70.8%
Race			
Asian	12 (48.0%)	13 (50.0%)	12 (50.0%)
Caucasian	13 (52.0%)	13 (50.0%)	11 (45.8%)
Knee OA			
Unilateral	40%	38.5%	38.7%
Bilateral	60%	61.5%	61.3%
K-L Grade			
2	36%	50%	37.5%
3	64%	50%	62.5%

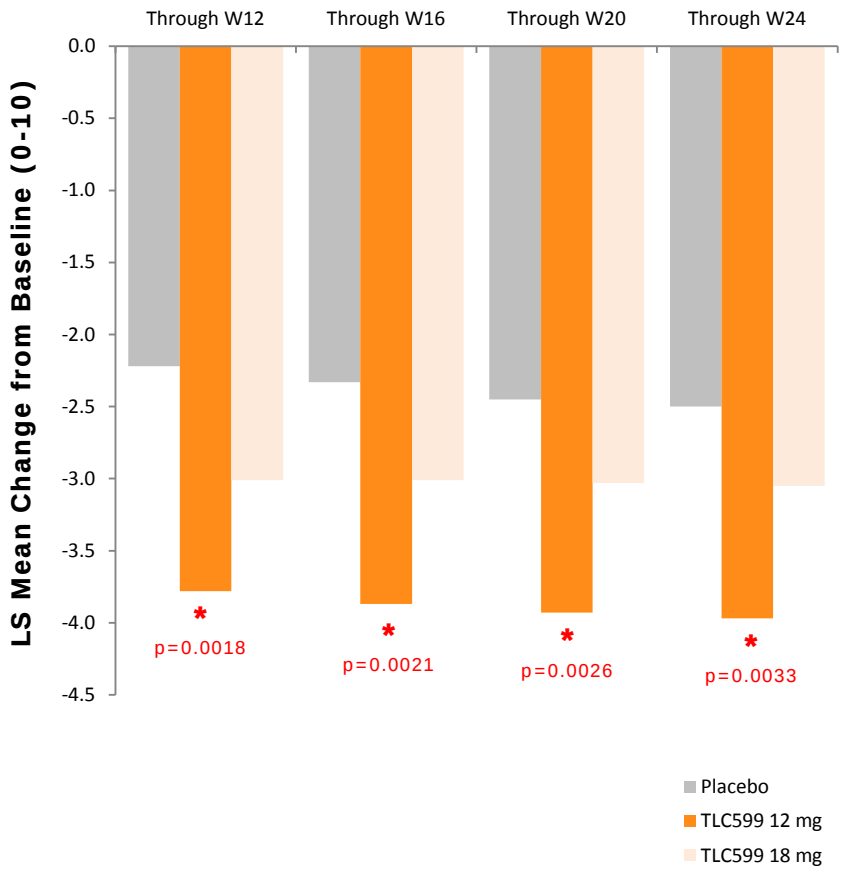
Phase II clinical trial – pain reduction through the visits

TLC599 showed statistical significance against placebo through 12, 16, 20, and 24 weeks

Phase II WOMAC Pain (0-4)



Phase II VAS Pain (0-10)



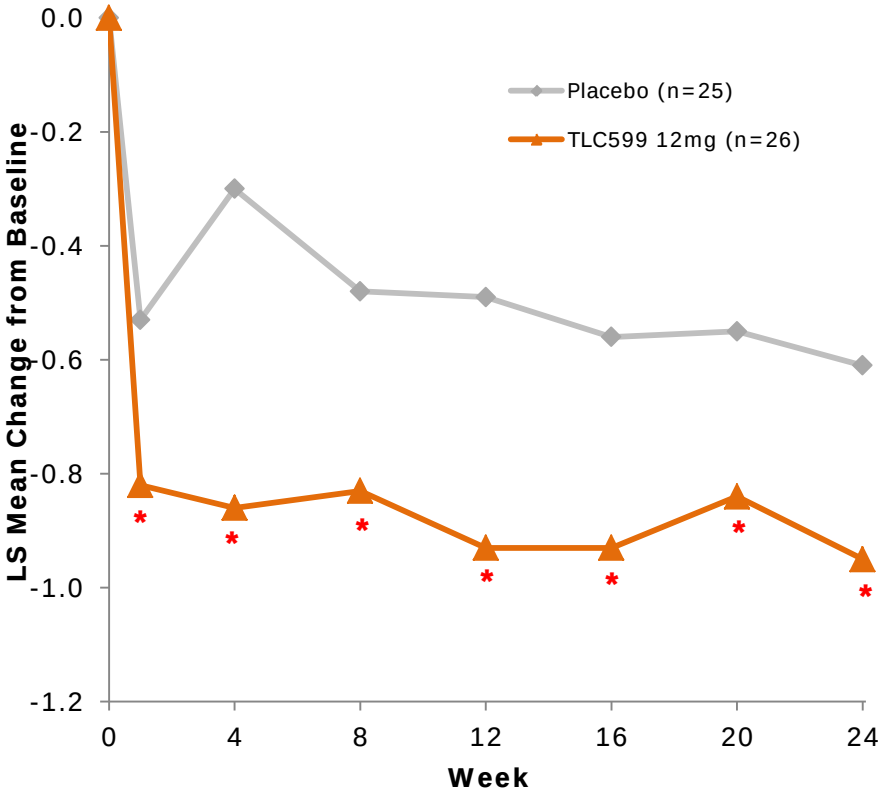
* Statistical significance

p-values from Mixed Effect Model Repeated Measure, LS mean change from baseline of WOMAC/VAS Pain compared to Placebo

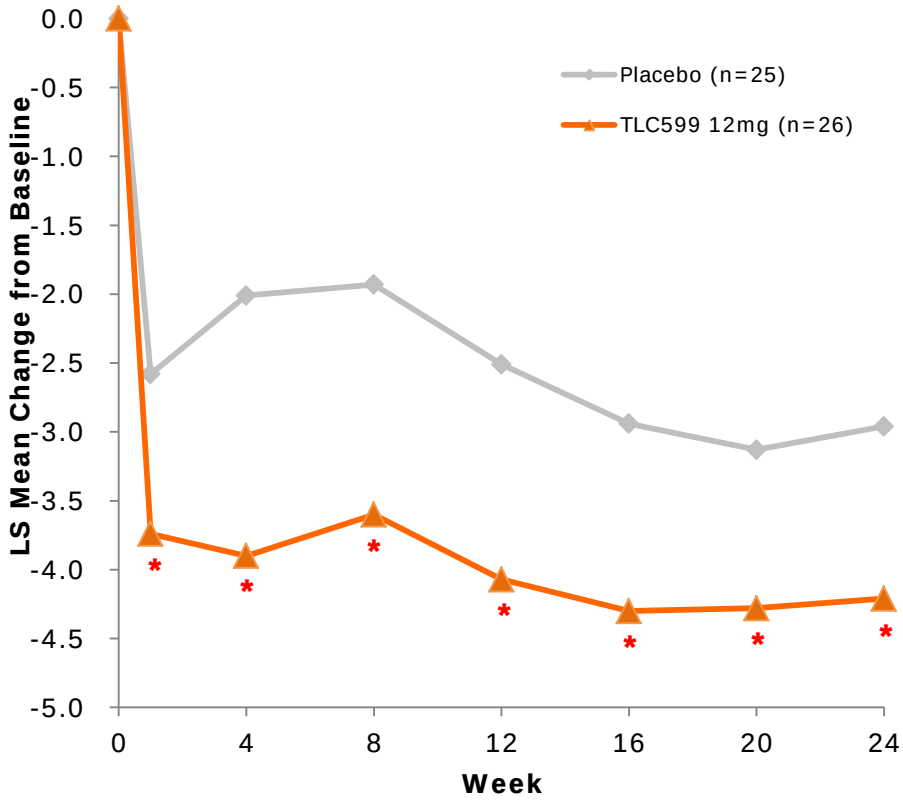
Phase II clinical trial – pain reduction at every visit

TLC599 also showed statistical significance against placebo at every scheduled visit

Phase II WOMAC Pain (0-4)



Phase II VAS Pain (0-10)



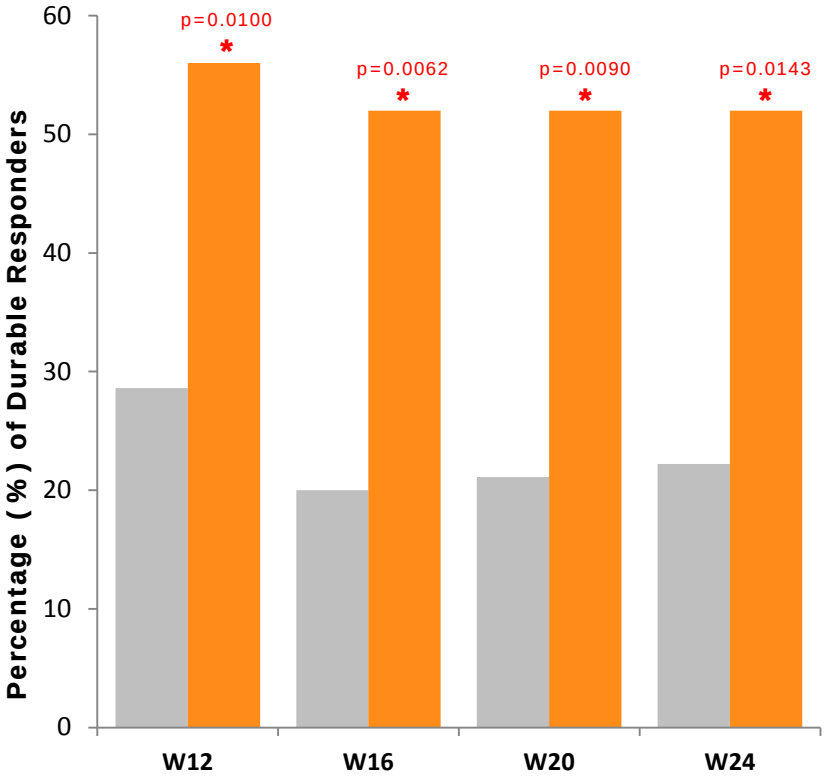
* Statistical significance

p-values from Mixed Effect Model Repeated Measure, LS mean change from baseline of WOMAC/VAS Pain compared to Placebo

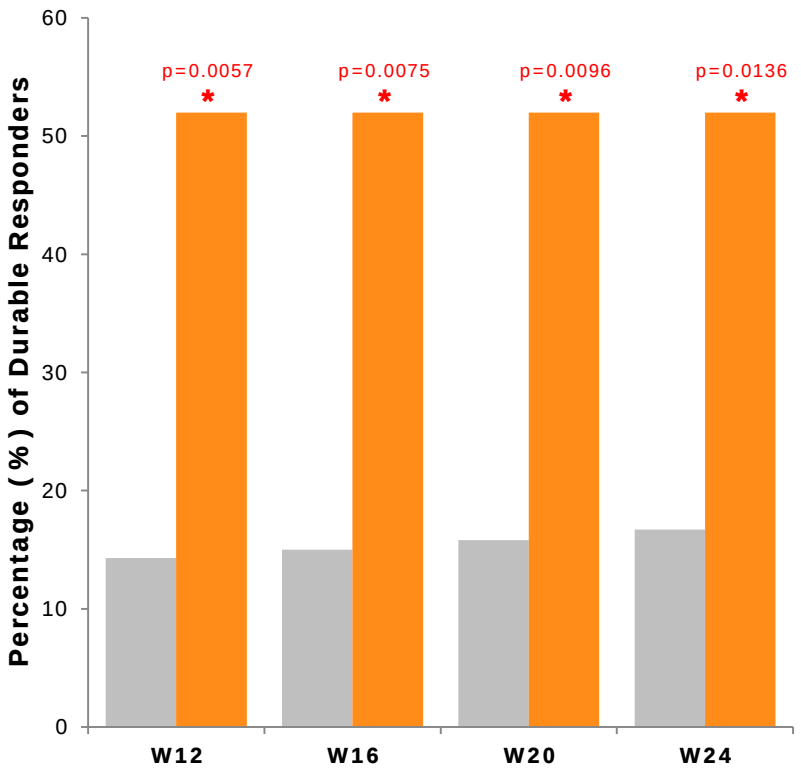
Phase II clinical trial – 30% durable responses

Majority of patients were clinically durable responders through 24 weeks

Phase II WOMAC Pain (0-4)



Phase II VAS Pain (0-10)



Placebo (n=25)
TLC599 12mg (n=26)

* Statistical significance

Pain score reduction of ≥30% = clinically important difference

p-values from Logistic regression model of WOMAC/VAS pain compared to Placebo

Phase II clinical trial – safety profile

TLC599 was well tolerated, with comparable frequency of TEAEs to placebo

	Placebo n=25	TLC599 12mg n=26	TLC599 18mg n=24
TEAE	17 (68%)	18 (69.2%)	20 (83.3%)
Treatment-related TEAE	4 (16%)	7 (26.9%)	11 (45.8%)
Treatment-related SAE	0	0	0
Index knee-related TEAE	4 (16%)	1 (3.8%)	3 (12.5%)
TEAE related to injection procedure	3 (12%)	1 (3.8%)	3 (12.5%)

- Treatment-emergent adverse events (TEAEs) among the three groups (TLC599 12mg, TLC599 18mg and placebo) were comparable
- No life-threatening treatment-related TEAE; no unexpected safety signals
- No deaths, no treatment related serious adverse events (SAEs)

Key takeaways

- ✓ **Immediate reductions in WOMAC and VAS Pain which were sustained**
  - Placebo response generally similar to other trials, with no increase to baseline late in trial
- ✓ **TLC599 12mg was statistically significantly better than placebo for reductions in pain from Day 3 through Week 12 (met primary endpoint)**
- ✓ **TLC599 12mg vs placebo, the following were statistically significant:**
  - WOMAC and VAS Pain **through** Week 12, 16, 20, 24
  - WOMAC and VAS Pain **at** Week 1, 4, 8, 12, 16, 20, 24
  - WOMAC and VAS Pain durable response in majority of subjects (maintain >30% reduction) at each visit from Week 1 through Week 12, 16, 20, and 24
- ✓ **Clinically meaningful pain relief**
  - Over half of subjects treated with TLC599 12mg maintained at least 30% reduction in pain throughout the 6-month study (>2x as many as placebo)

"I am impressed with TLC599's ability to consistently provide fast and durable pain relief in the majority of patients for the entire follow-up period of six months."

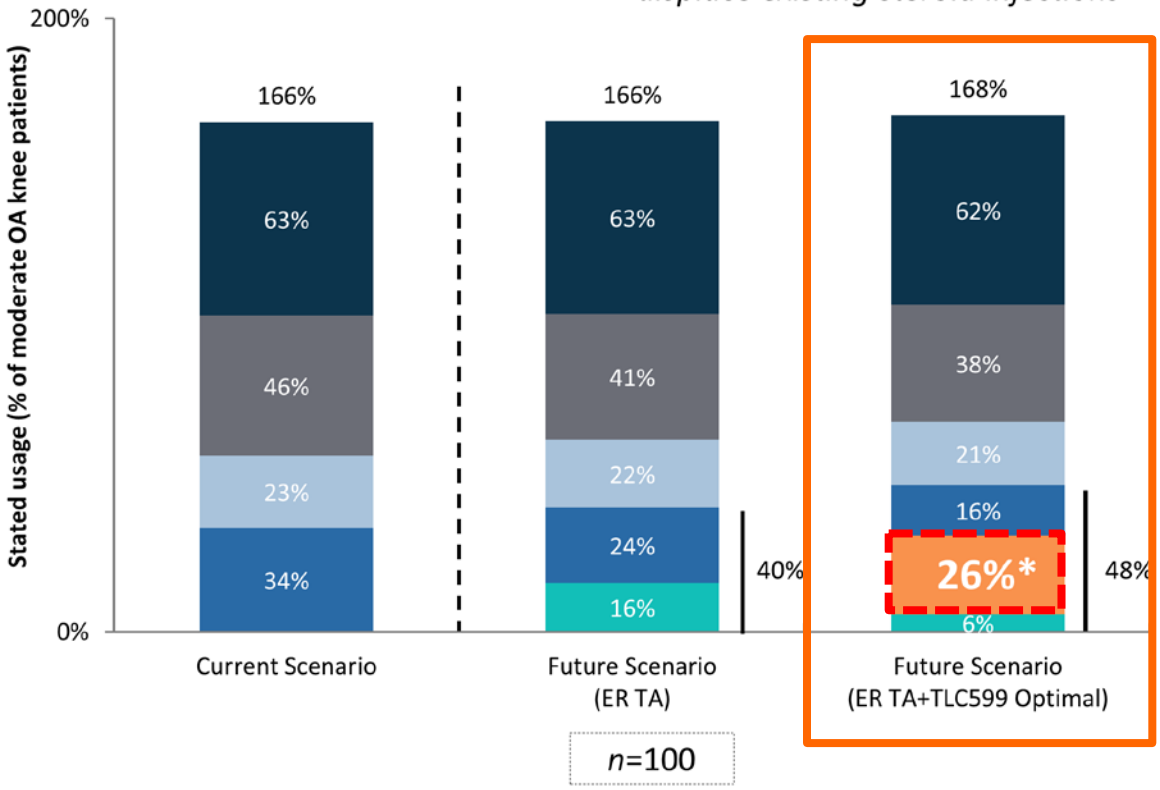
- Dr. David Hunter
A principal investigator on our TLC599 Phase II trial

Market research study with 16-week pain control

TLC599 could achieve usage in 26% of all US knee OA patients

Anticipated Future Treatment Usage for Moderate Knee Osteoarthritis Patients

The recently approved ER TA product and TLC599 are expected to expand injectable steroid market and partially displace existing steroid injections



TLC599 Optimal Profile

Fast pain relief as quickly as **1wk**	**>3mo** sustained pain relief	**Better** WOMAC **Pain Reduction**
Safer for repeat dosing	**21G-30G** needle size	

Values sum to > 100% as a particular patient may receive multiple types of treatments concurrently. Responses have been weighted by the number of Knee OA patients that the physician manages

*Statistically significant difference at 95% CI against approved ER TA in Future Scenario (Approved ER TA+ TLC599 Optimal)

Source: ZS Associates Market Study

Post-Surgical Pain Program

TLC590: BioSeizer sustained release ropivacaine injection for post-operative pain management

TLC590 target product profile

Fast acting, long lasting non-opioid post-operative local anesthetic for up to 72 hours

Current local anesthetic landscape

- **96 million surgical procedures** were performed in the US in 2012[1]
- Local anesthetics play a major role in the management of post-surgical pain[2]
- Long acting agents have modestly expanded duration, but the API in current marketed liposomal formulation of bupivacaine has higher toxicities[3]

Our strategic solution: TLC590

- Non-opioid
- Fast, immediate onset
- Extended **pain relief of up to 72 hours**
- Less cardiovascular and central nervous system toxicity
- Potential for lower COGS allows for monetization of hospital opportunity

TLC590 development stage

- Phase I/II trial in hernia repair surgery completed; **topline data 1Q19**
- Phase II trial in bunionectomy initiated
- Planned Phase II trial in abdominal wall surgery initiation 2020

[1] World Bank. Number of surgical Procedures. [2] Infiltration of Local Anesthetics for Postoperative Analgesia. Pfiedler Enterprises. 2015. [3] Local Anesthetics Systemic Toxicity Association with Exparel (Bupivacaine Liposome)- A Pharmacovigilance evaluation, Expert Opinion on Drug Safety. Expert Opin Drug Saf. 2017 Jun 5:1-7

Features comparison

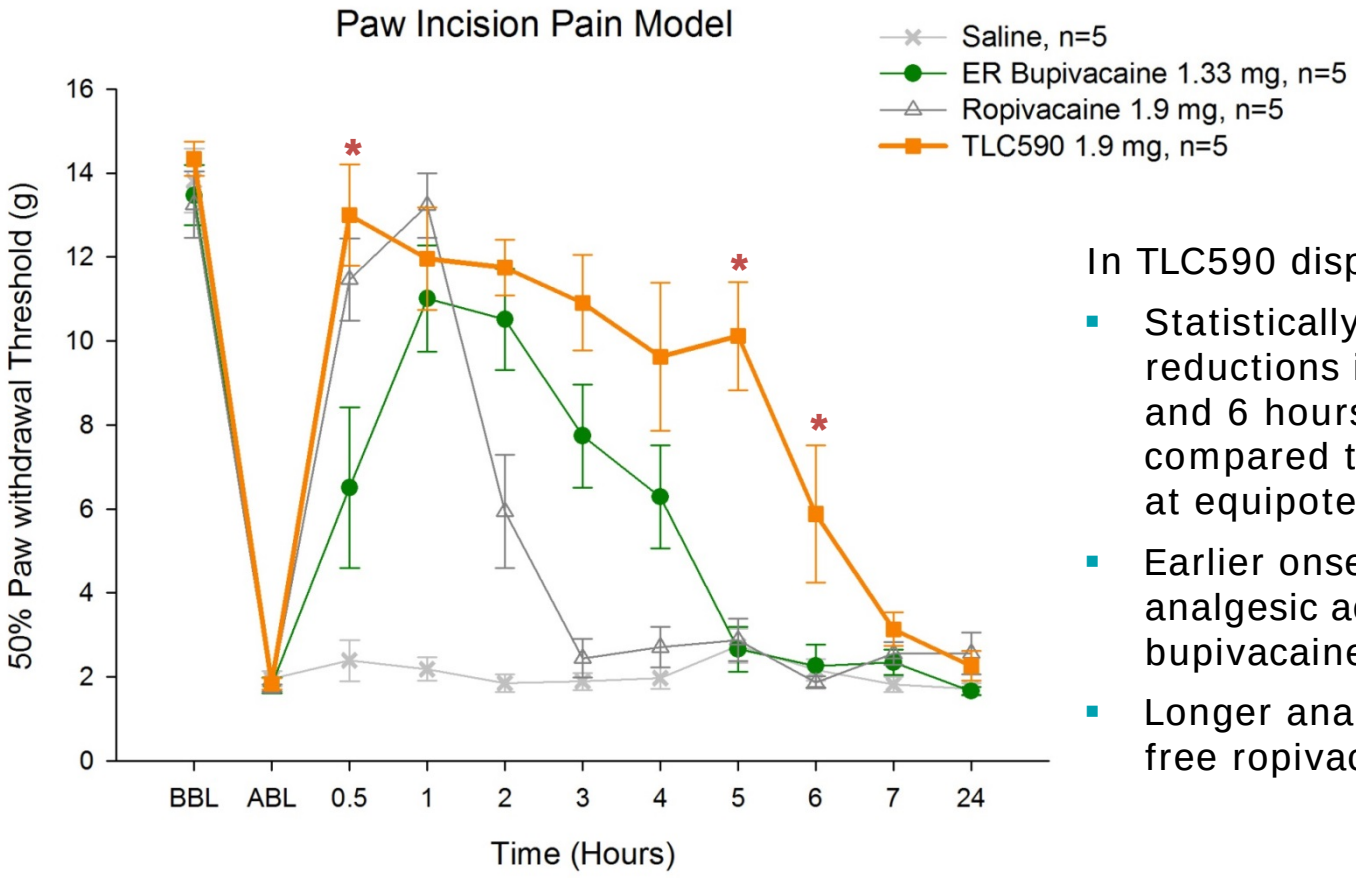
Current data for TLC590 vs other postsurgical pain management drugs

Product Attributes	Generic Local Anesthetics	ER Bupivacaine	TLC590 (ER Ropivacaine)
Sustained release formulation	✗	✓	✓
Lower Local anesthetic systemic toxicity (LAST) – cardiovascular[1]	✗	✗	✓
Lower LAST – central nervous system[2]	✗	✗	✓
Pain management up to 72 hours[3]	✗	✓	✓
Near-end stage sterile filtration only – no need for wholly aseptic manufacturing process[4]	✓	✗	✓
Lower risk of foreign particulate	✓	✗	✓

[1] [2] Local Anesthetics Systemic Toxicity Association with Exparel (Bupivacaine Liposome)- A Pharmacovigilance evaluation, Expert Opinion on Drug Safety. Expert Opin Drug Saf. 2017 Jun 5:1-7 [3] Efficacy profile of liposome bupivacaine, a novel formulation of bupivacaine for postsurgical analgesia. Journal of Pain Research 2012:5 107–116 [4] Patheon, Published 08/16 PATH0693. [5] Guidance for Industry. Sterile Drug Products Produced by Aseptic Processing — Current Good Manufacturing Practice. 2004

Preclinical paw incision analgesic study

TLC590 produced statistically significant reductions in pain compared to ER bupivacaine

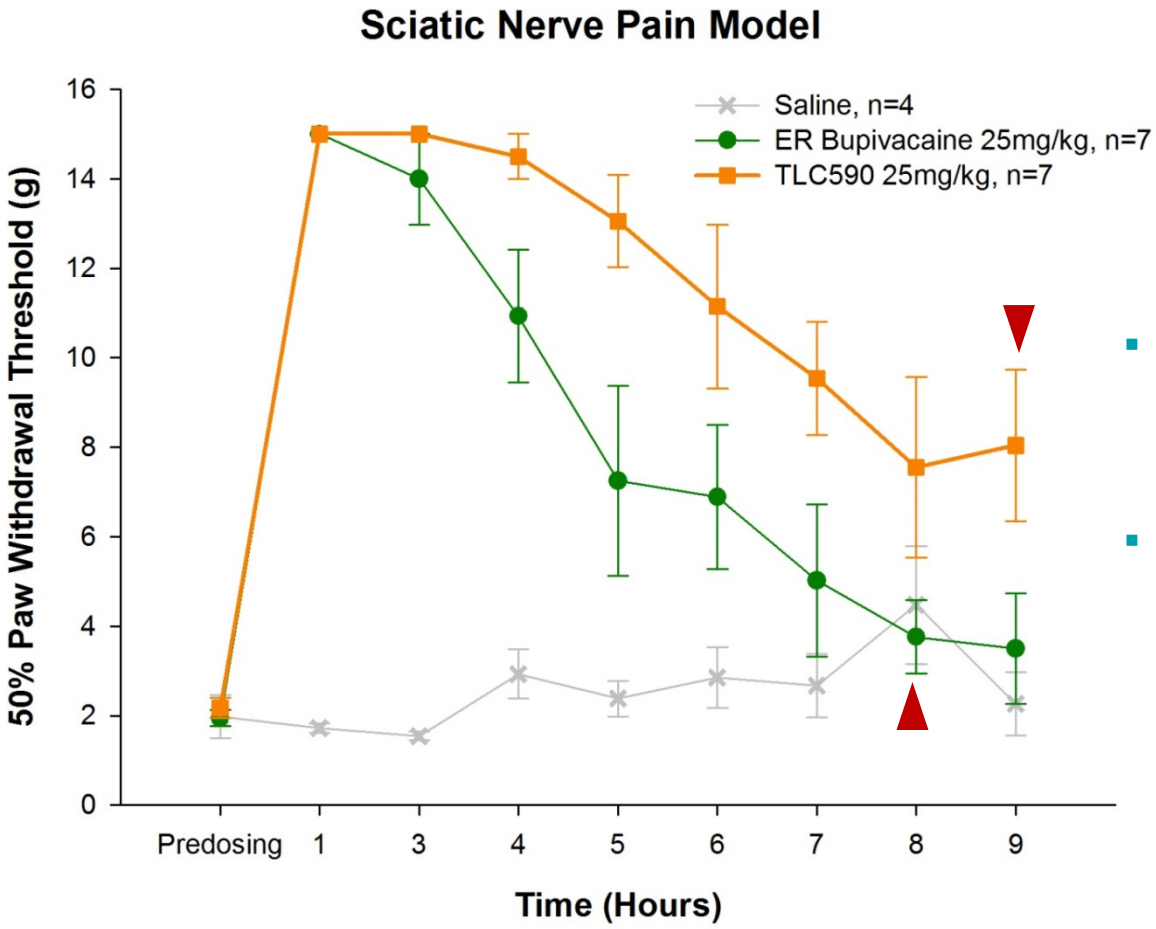


In TLC590 displayed…

- Statistically significant reductions in pain at 0.5, 5, and 6 hours post-injection compared to ER bupivacaine at equipotent dose
- Earlier onset and longer analgesic action than ER bupivacaine
- Longer analgesic action than free ropivacaine

Preclinical nerve block study

TLC590 exhibited more robust magnitude and duration of analgesia

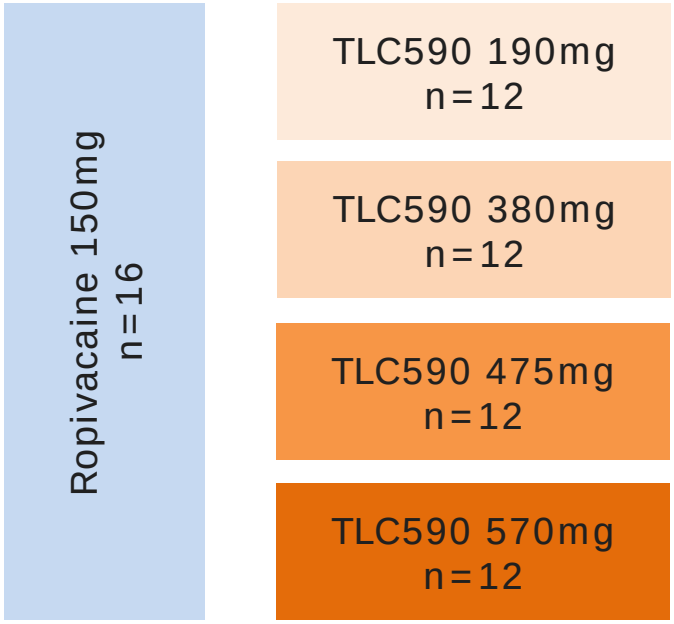


- TLC590 exhibited larger magnitude of analgesia which persisted to the 9th hour
- Analgesic action of ER bupivacaine diminished and was comparable to saline by the 8th hour

Phase I/II clinical trial – inguinal hernia repair surgery

Trial complete – topline data readout 1Q19

Phase I/II, randomized, double-blind, comparator-controlled, dose-escalation study of TLC590 compared with free ropivacaine via a single infiltrative local administration in adult subjects following inguinal hernia repair surgery.



Primary objective:

- Evaluate the safety and tolerability of TLC590 for postsurgical pain management in subjects following inguinal hernia repair surgery

Secondary objectives:

- Evaluate PK profile and dose-exposure relationship and bioavailability compared to free ropivacaine
- Evaluate analgesic efficacy compared with free ropivacaine
- Evaluate exposure-response relationship between PK parameters and pain management

✓ **LPI end of Dec 2018**
✓ **No SAEs**

Design and objectives

Phase 2, randomized, double-blind, comparator- and placebo-controlled study of TLC590 compared with free ropivacaine and placebo via a single infiltrative local administration in adult subjects following bunionectomy

Part 1	152mg **TLC590** (8mL) n=12	190mg **TLC590** (10mL) n=12	228mg **TLC590** (12mL) n=12	50mg **Ropivacaine** (10mL) n=12
Part 2	Low dose **TLC590** n=50	High dose **TLC590** n=50	50mg **Ropivacaine** (10mL) n=50	Saline **Placebo** (10mL) n=25

Primary Objective:

- Evaluate the analgesic efficacy of TLC590 for postsurgical pain management in subjects following bunionectomy.

Secondary Objectives:

- Evaluate PK profile and dose-exposure relationship and bioavailability compared to free ropivacaine
- Evaluate safety and tolerability of TLC590
- Evaluate the exposure-response relationship between PK parameters and pain intensity

Ophthalmic Disease Program

TLC399: BioSeizer sustained release dexamethasone sodium phosphate (DSP) intravitreal injection for macular edema (ME) due to retinal vein occlusion (RVO)

TLC399 target product profile

Fast acting, long lasting non-implant dexamethasone intravitreal injection

Current treatment landscape for macular edema

- **RVO affects >16 million adults** worldwide[1]
- Steroids still play a prominent role in the management of RVO even post the advent of anti-VEGF[2]
- Current marketed dexamethasone injection has 1-3 month duration[3] but its implant takes up to 6 months to dissolve[4]

Our strategic solution: TLC399

- Rapid onset
- Designed to achieve **prolonged sustained release duration beyond six months**
- Administration needle 2.3 times smaller than diameter of current marketed steroid injection, reducing risk of conjunctival hemorrhaging and infections

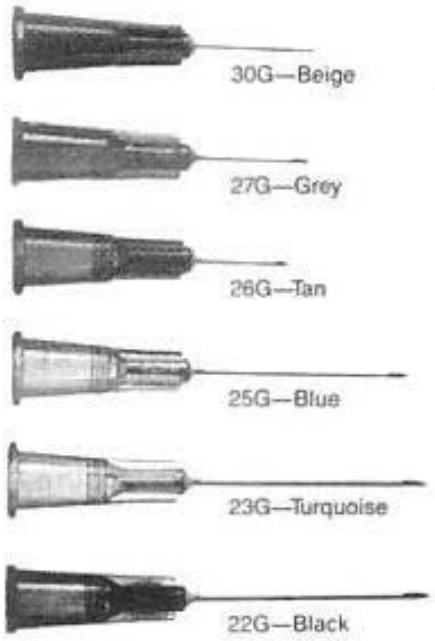
TLC399 development stage

- Ongoing* randomized, double-blind Phase II trial in macular edema due to RVO with last patient enrollment 2H19
- Planned development alone or with anti-VEGF to treat **diabetic macular edema**

* As of September 2018, the SMC selected the optimal dose group to be Group 3, This dose will be further studied along with a higher dose (70mL) of the same formulation (containing 50mM PL).

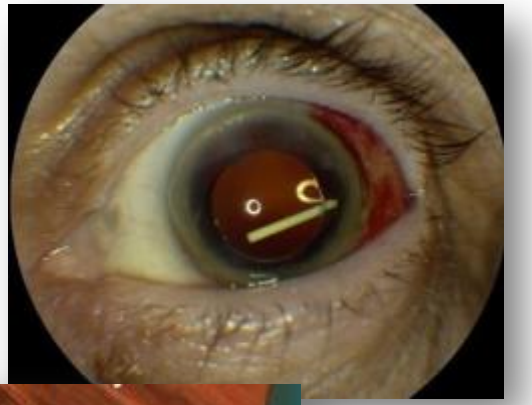
[1] Sophie Rogers et al, "The Presence of Retinal Vein Occlusion: Pooled Data from Population Studies from the United States, Europe, Asia and Australia; 117(2): 313-9el. (2010). [2] Effect of intravitreal triamcinolone in diabetic macular edema unresponsive to intravitreal bevacizumab. Jeon S1, Lee WK. Retina. 2014 Aug;34(8):1606-11. [3] Ozurdex® Prescribing Information [4] Ozurdex drug delivery implant for eyes, The Macula Center, Dana M. Deupree, MD, FACS & Michael Tolentino, MD

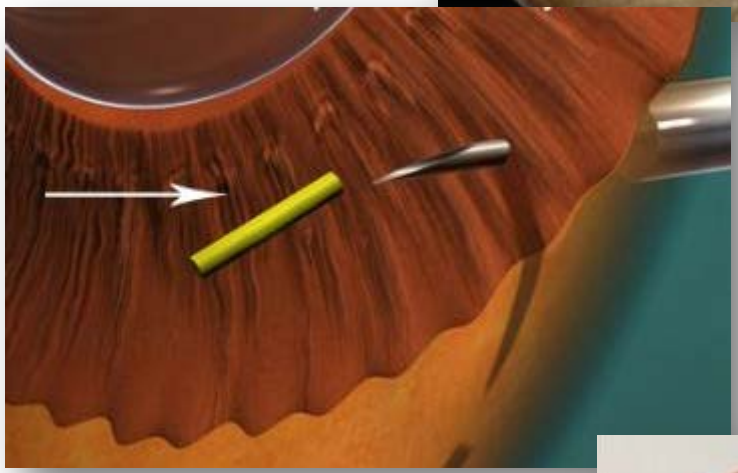
Administration of TLC399 potentially means less risk of bleeding/infections



TLC399
(no implant)
30G / 0.3112mm

Approved steroid implant
22G / 0.7176mm





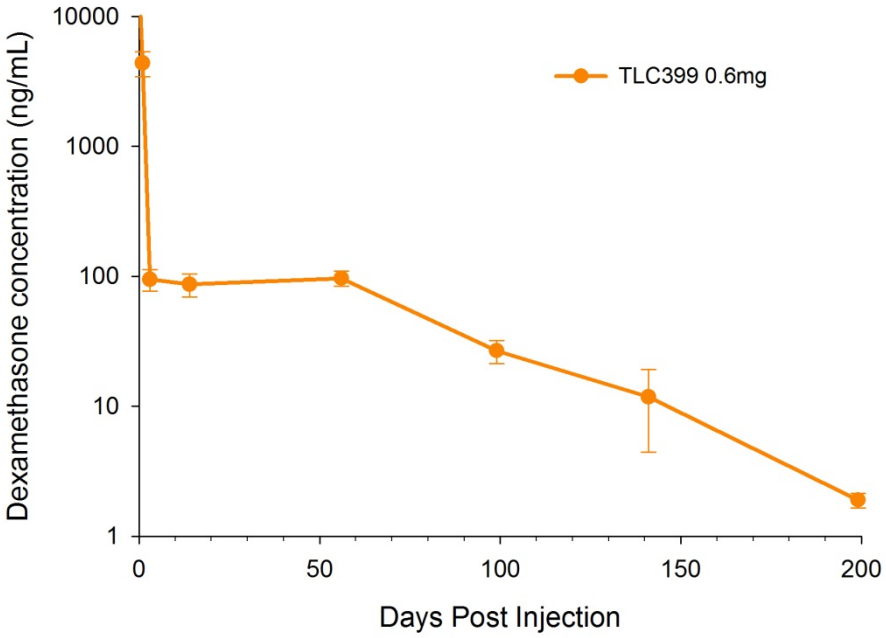
- Injections using 22G needle cause bleeding in 23% of patients[1]
- TLC399 uses smaller 30G needle and no implants ⇒ potentially less risk of bleeding and infections ⇒ fewer complications

[1] Ozurdex® Prescribing Information

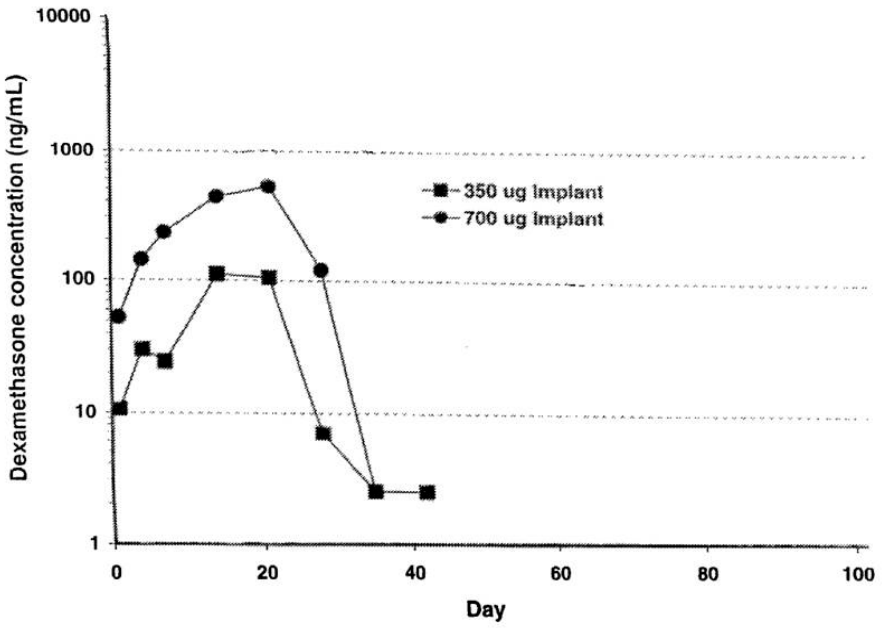
Preclinical study

Dexamethasone levels of TLC399 in the eye maintained for >200 days

TLC399 Rabbit Vitreous
Maintained effective to Day 200



Dex Implant Rabbit Vitreous
Concentration below LoQ by Day 35



Source: Ozurdex presentation

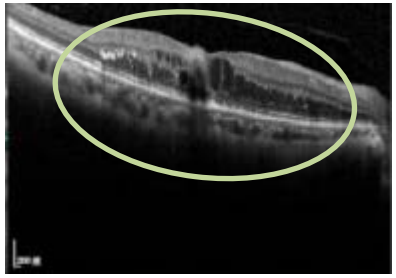
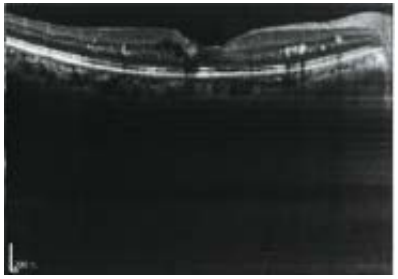
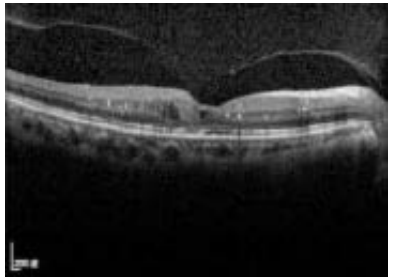
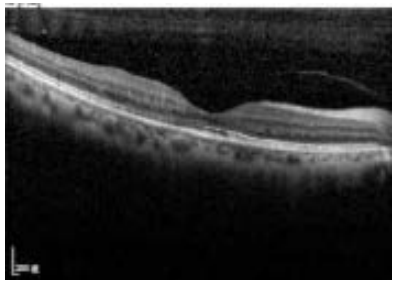
When injected into eyes of animals…

- DSP was undetectable within one day
- Dexamethasone implants sustained therapeutic levels for ~40 days before reaching limit of quantitation (LoQ=2.5ng/mL)
- TLC399 maintained therapeutic levels over a period of >200 days

*No head-to-head trials have been performed between TLC399 and dex implant

Phase I clinical trial

Decrease in CST up to 12 months after single injection (0.6mg DSP)

Day 0	Day 90	Day 180	Day 360
			

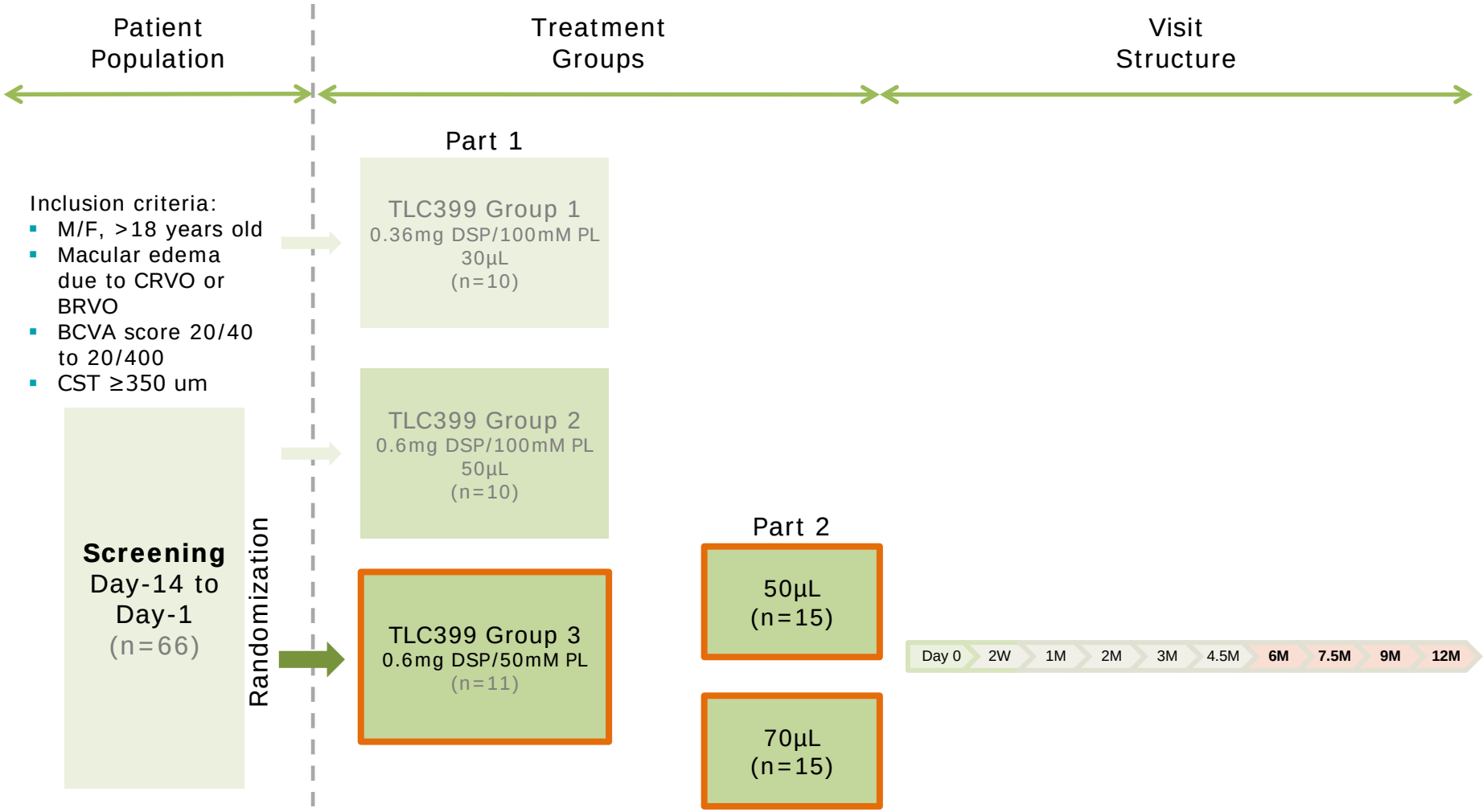
CST* 386 µm → 253 µm → 264 µm → 206 µm

* Central Subfield Thickness

- Improved/stabilized vision for 6 to 12 months
- Improved optical coherence tomography (OCT) results for 6 to 12 months

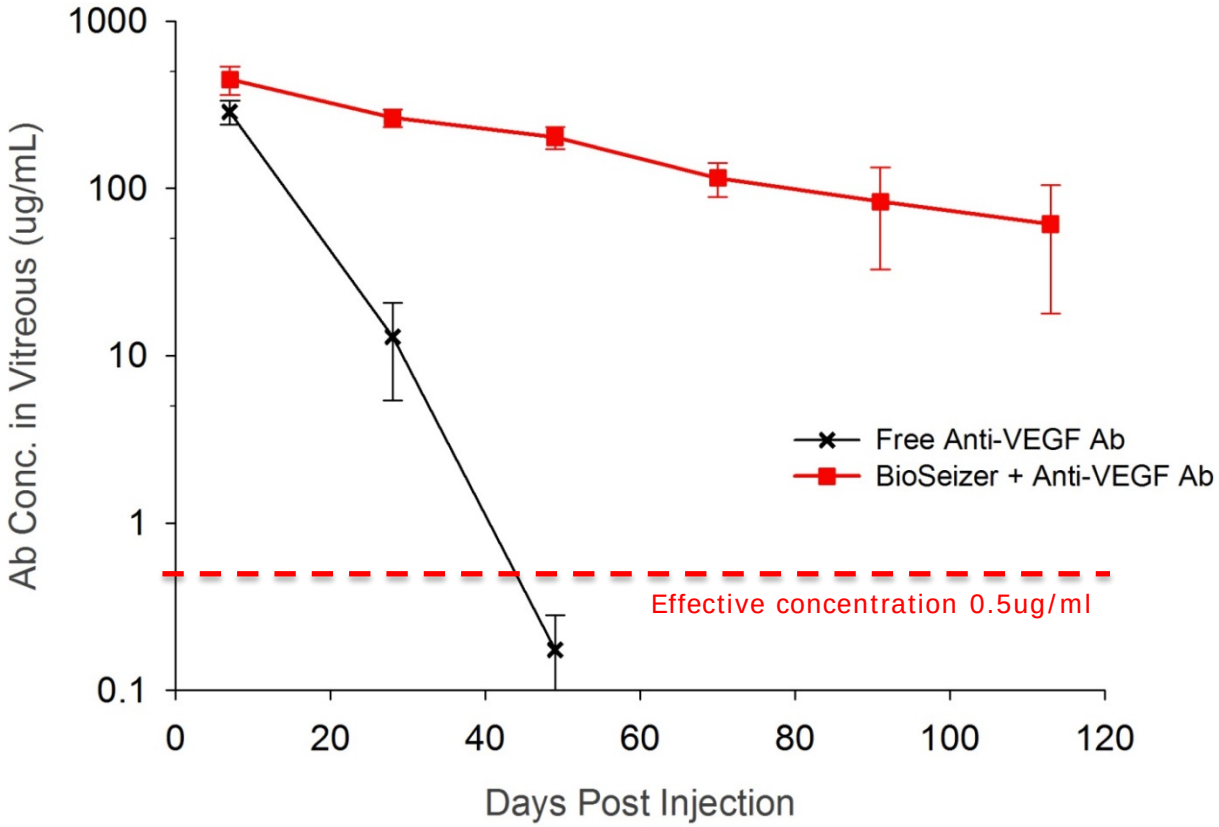
Phase II clinical trial

Updated TLC399 trial design with optimized formulation



Extending BioSeizer to anti-VEGF Ab: *in vivo* evidence of much longer duration

Rabbit IVT PK Profile Measured by ELISA



- Concentration of Anti-VEGF can be significantly maintained from 1-2 months to >4 months when engaged with TLC's proprietary BioSeizer technology

Soft Tissue Sarcoma Program

TLC178: NanoX tumor-concentrated delivery of vinorelbine for rhabdomyosarcoma (RMS) and potentially for soft tissue sarcomas (STS) and non-small cell lung carcinoma (NSCLC)

TLC178 target product profile

Safer, less toxic, more durable anticancer drug with RPD and ODD designations

Current treatment landscape in cancers

- Vinorelbine (VNB) is listed by the National Comprehensive Cancer Network (NCCN) Guidelines as therapy agent with activity in RMS in combination with cyclophosphamide, or as a single agent only for palliative therapy[1], but with significant dose limiting myelosuppression[2] [3]
- Vinorelbine and gemcitabine (Gem) combo is active regimen in STS and NSCLC[4] [5]

Our strategic solution: TLC178

- **Improve selective delivery** to tumor versus non-tumor tissue
- **Higher drug concentration at tumor** confers higher activity
- Less drug to non-tumor reduces myelosuppression, enabling **higher dose intensity**
- **Efficacy improvement in treatment response rate and duration of response**

TLC178 development stage

- Ongoing Phase I/II dose-escalation trial in adults
- IND cleared for pediatric RMS (US FDA Rare Pediatric Disease Designation, RPD)
- Phase I/II trial in pediatric RMS initiation once suitable dose in adults established
- Planned further expansion in gemcitabine combo into STS (US FDA and EU Orphan Drug Designation, ODD) and NSCLC

[1] National Comprehensive Cancer Network, NCCN Clinical Practice Guidelines in Oncology – Soft Tissue Sarcoma, Version 1.2018, October 31, 2017. [2] Phase II Evaluation of Intravenous Vinorelbine (Navelbine) in Recurrent or Refractory Pediatric Malignancies: A Children's Oncology Group Study. Pediatric Blood Cancer. 2009 October ; 53(4): 590–93. [3] Vinorelbine in Previously Treated Advanced Childhood Sarcomas .Cancer 2002;94:3263–68. [4] Gemcitabine and Vinorelbine Combination Chemotherapy for Patients With Advanced Soft Tissue Sarcomas. Cancer 2007;109:1863-69. [5] The Novel and Effective Non-platinum, Nontaxane Combination of Gemcitabine and Vinorelbine in Advanced Non-small Cell Lung Carcinoma. Cancer 2002;95(2)340-53.

RMS: rare, aggressive, most common soft tissue cancer in kids with about 350 cases per year

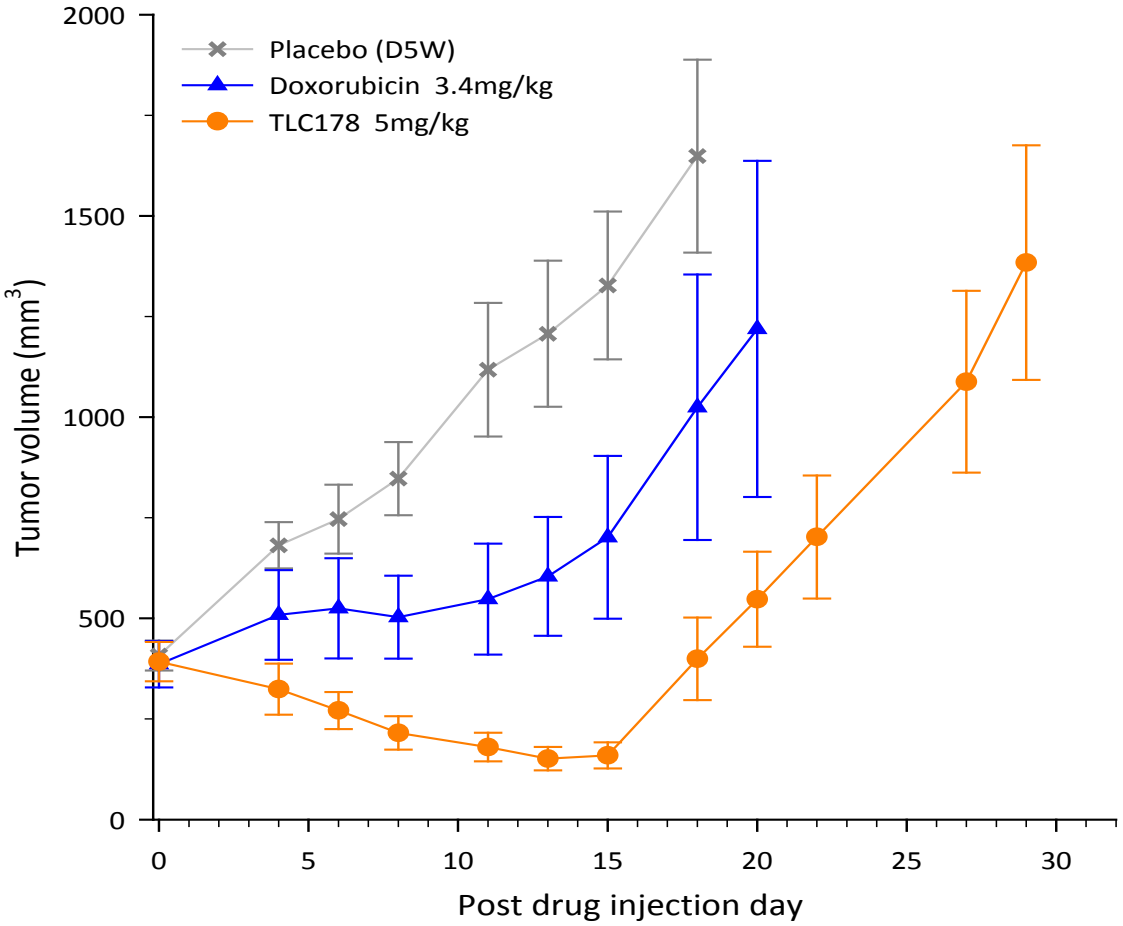
Incidence	Annually 350 new cases in the US[1]
Cure rate	70% for multimodality treatment[2]
Common practice	Vincristine, vinorelbine (although not approved by FDA for use in RMS) and cyclophosphamide regimen[3]
Unsatisfactory treatment options	The remaining 30% RMS patients will suffer from relapsed or refractory RMS with only 20% of 5-year survival rate; most relapsed patients die in the first year[4]
Guideline	Neither established guideline nor meaningful improved therapy in relapsed or refractory RMS within 30 years[5] [6] [7]

[1] "What Are the Key Statistics About Rhabdomyosarcoma?" American Cancer Society. [2] Survival After Relapse in Children and Adolescents With Rhabdomyosarcoma: A Report From the Intergroup Rhabdomyosarcoma Study Group. Journal of Clinical Oncology, Vol 17, No 11, 1999: pp 3487-3493. [3] Relapse After Localized Rhabdomyosarcoma: Evaluation of the Efficacy of Second-Line Chemotherapy. Pediatr Blood Cancer 2015;62:1935–1941. [4] Survival after relapse in children and adolescents with rhabdomyosarcoma: A report from the Intergroup Rhabdomyosarcoma Study Group. Journal of Clinical Oncology, Vol 17, No 11, 1999: pp 3487-3493. [5] Relapse After Localized Rhabdomyosarcoma: Evaluation of the Efficacy of Second-Line Chemotherapy. Pediatr Blood Cancer 2015;62:1935–1941. [6] Treatment of Nonmetastatic Rhabdomyosarcoma in Childhood and Adolescence: Third Study of the International Society of Paediatric Oncology—SIOP Malignant Mesenchymal Tumor 89. Journal of Clinical Oncology. Vol. 23, No 12, 2005: pp 2618-2628. [7] Long-Term Medical Effects of Childhood and Adolescent Rhabdomyosarcoma: A Report From the Childhood Cancer Survivor Study. Pediatr Blood Cancer 2005;44:643–653.

Preclinical study – fibrosarcoma model

TLC178 showed significant tumor inhibition response compared to doxorubicin ($p<0.05$)

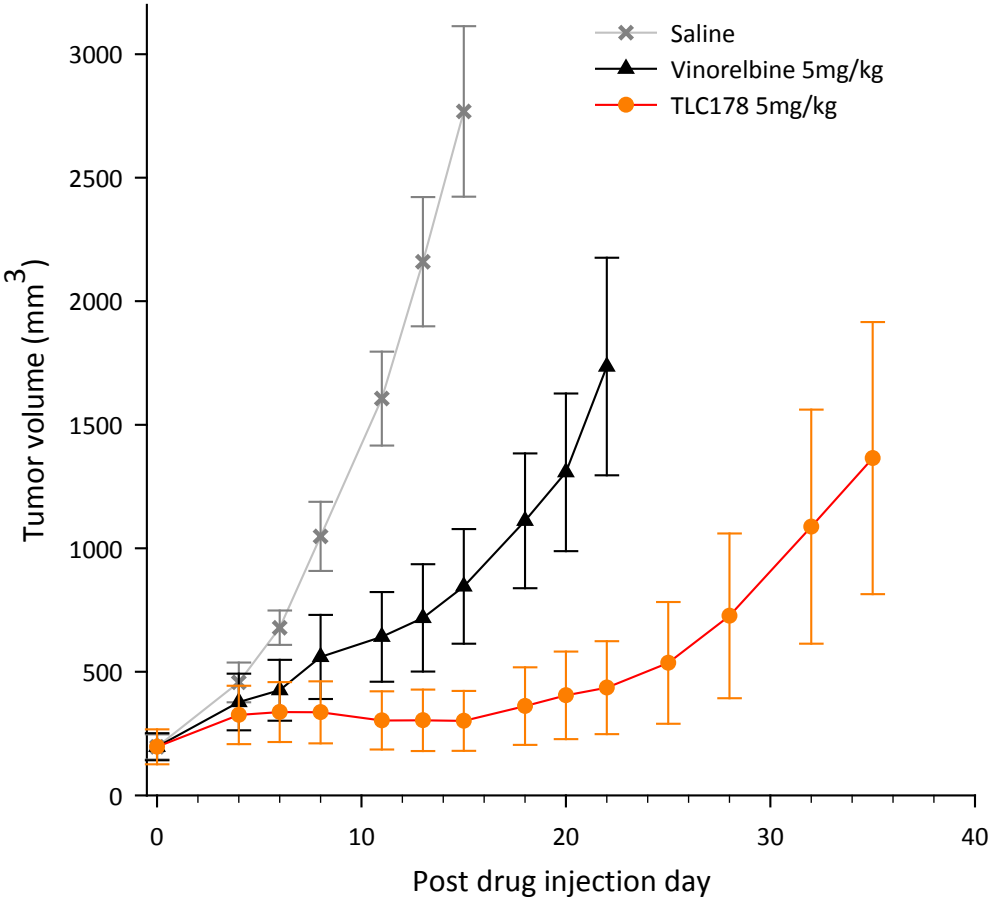
Antitumor Efficacy of TLC178 in Fibrosarcoma Model



Preclinical study – RMS model

TLC178 demonstrated more effective control of tumor growth than free vinorelbine

Antitumor Efficacy of TLC178 in RMS Model



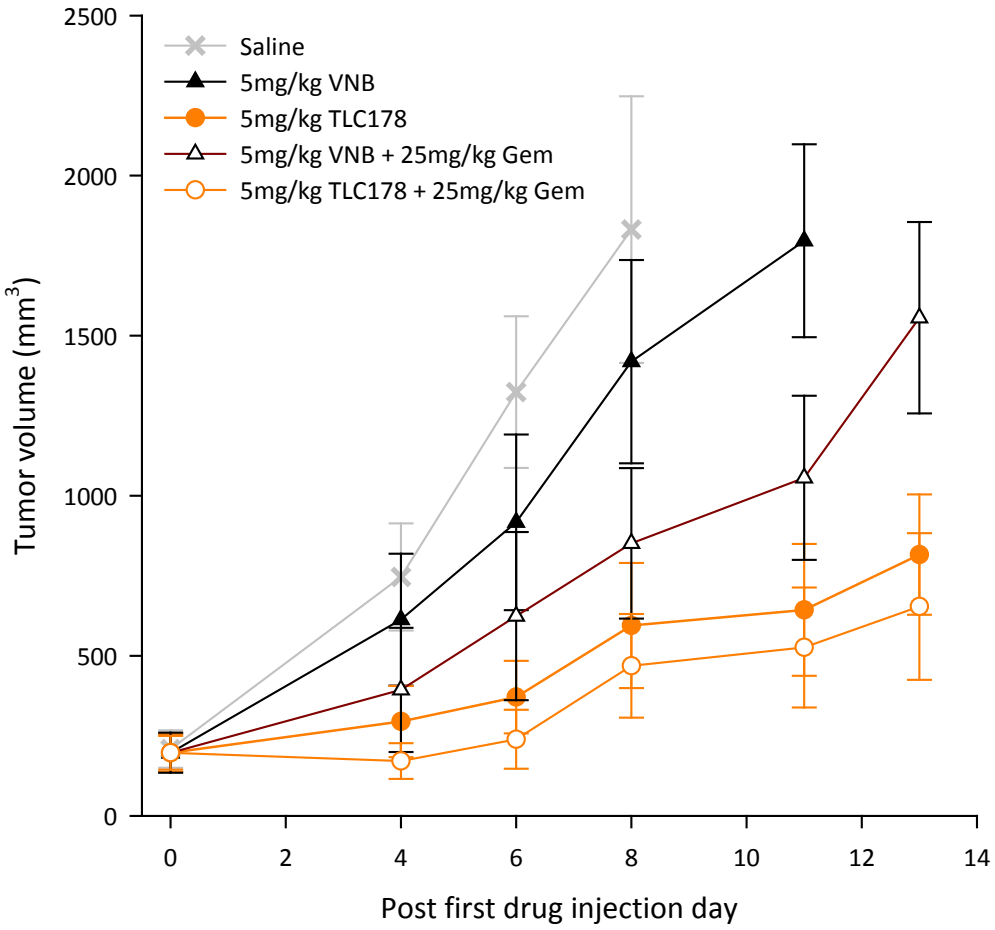
TLC178 superior to vinorelbine ($p<0.05$) from day 18 onwards

Compared to free vinorelbine, TLC178 potentially has…

- Better pharmacokinetics
- Reduced myelosuppressive side-effects
- Longer dosing intervals
- Higher vinorelbine concentration at neovascular-rich and subcutaneous tumor sites
- Capability to broaden indications

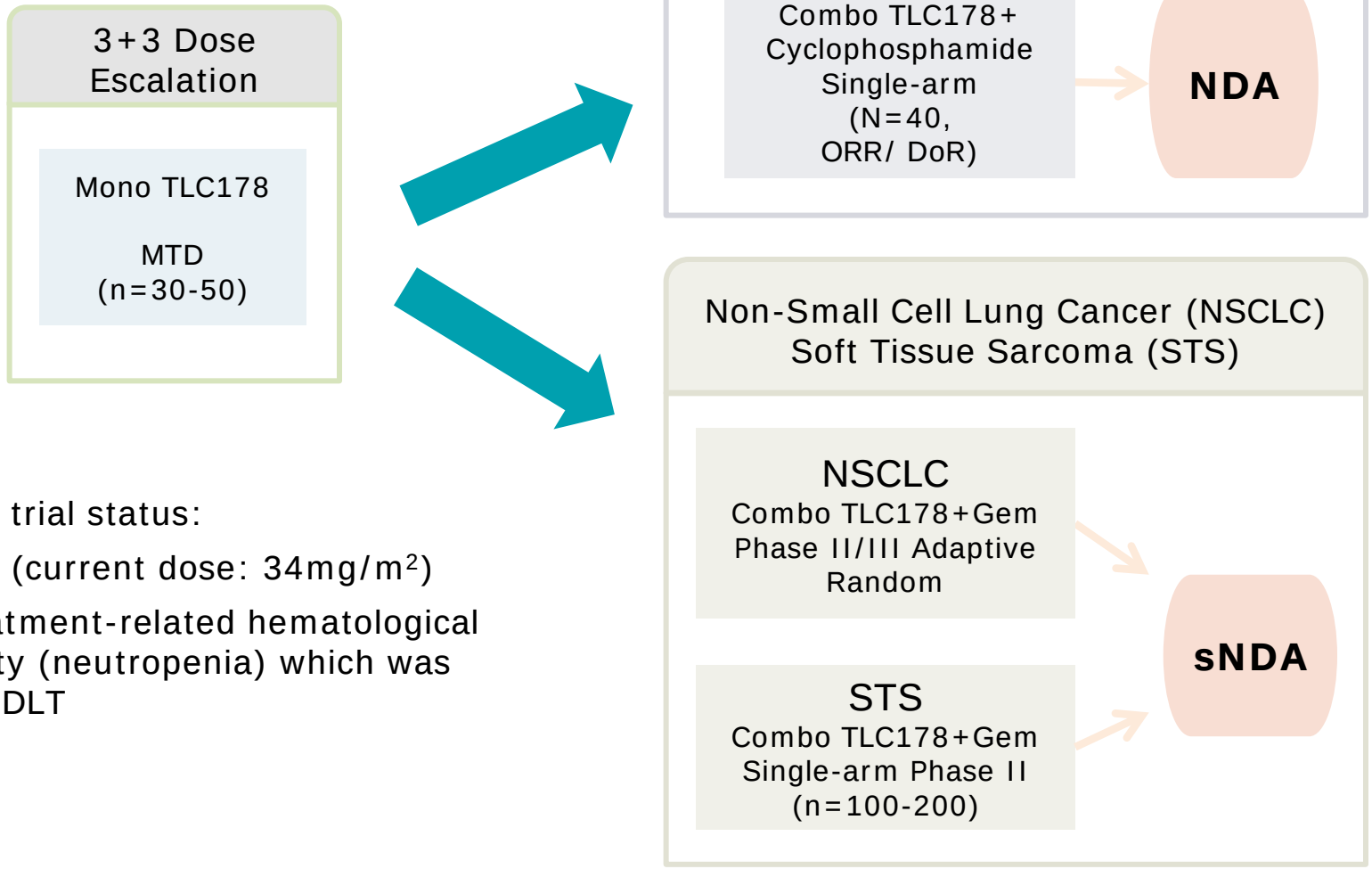
TLC178 demonstrated superior control of tumor growth over VNB and VNB + Gem

Antitumor Efficacy of TLC178 alone and with Gem in NSCLC Model



- TLC178 showed better antitumor activity than VNB and VNB + Gem ($p<0.05$)
- Little difference between TLC178 and TLC178 + Gem ($p>0.05$)

Clinical development plan for TLC178 in pRMS with extended indications in STS and NSCLC



Current trial status:

- N=23 (current dose: 34mg/m^2)
- 1 treatment-related hematological toxicity (neutropenia) which was not a DLT

* Anemia that was not related to the trial has been observed in three patients.

TLC Summary

Anticipated short- and long-term milestones

All programs expected to be in late or pivotal stage within two years

TLC599
EOP2 meeting (CMC)

TLC599
Fast track designation submission

TLC599
Phase II PK topline data

TLC590
Phase II topline data (bunionectomy)

TLC399
Phase II last patient enrollment

TLC599
Pivotal trial topline data

1H19 | 2H19 | 1H20 | 2H20

TLC599
EOP2 meeting (clinical)

TLC599
Special protocol assessment submission

TLC599
Pivotal trial initiation

TLC590
Phase I/II topline data (hernia repair)

TLC178
EU orphan designation

TLC590
Pivotal trial initiation

TLC590
Phase II initiation (abdominal wall surgery)

TLC178
Phase I/II trial Part 2 – pivotal initiation

TLC178
Phase I/II initiation (pediatric RMS) after suitable dose found in adults

TLC - Key takeaways

✓ Experienced management team

- CEO Dr. Keelung Hong's third liposome company; President George Yeh's second
- Over 150 years of experience on management team

✓ Robust and diverse pipeline

- Programs targeting areas of unmet need in pain management (TLC599 & TLC590), ophthalmology (TLC399) and oncology (TLC178) in their late or pivotal stage within the next two years

✓ Strong global IP protection

- 50 granted patents worldwide
- 64 patent applications under review

✓ Global presence and partners

- 8 offices worldwide
- Partnerships with Sandoz, Pfizer (Hospira), Evonik, Baxter, Asian big pharmas

✓ Distinguished reputation - Top 5% in corporate governance

- Listed on Nasdaq (TLC) and Taipei Exchange (TT:4152)
- Ranked top 5% five years running in corporate governance evaluation among all Taiwan-listed companies

Thank You

tlc Delivering Hope for Life