TLC Corporate Presentation



Delivering Hope for Life[™]

Legal disclaimers



This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. In some cases, you can identify forward-looking statements by the words "will," "expect," "intend," "plan," "objective," "believe," "estimate," "potential," "continue" and "ongoing," or the negative of these terms, or other comparable terminology intended to identify statements about the future. These statements are based on management's current beliefs and expectations. These statements include but are not limited to statements regarding our business strategy, our plans to develop and commercialize our product candidates, our plans to enter into transactions with commercial or strategic partners, the safety and efficacy of our product candidates, our expectations regarding timing, design and results of clinical trials of our product candidates, our plans and expected timing with respect to regulatory filings and approvals, the size and growth potential of the markets for our product candidates, and our ability to serve those markets, and our plans and expected timing with respect to regulatory filings and approvals. These statements involve substantial known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to be materially different from the information expressed or implied by these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Factors that may cause our actual results to vary from current expectations are discussed in our prospectus relating to our initial public offering and our other filings with the U.S. Securities and Exchange Commission, including the "Risk Factors" sections therein. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. The forward-looking statements in this presentation represent our views as of the date of this presentation. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this presentation.

The trademarks included herein are the property of the owners thereof and are used for reference purposes only. Such use should not be construed as an endorsement of such products.

✓ Experienced & dedicated team

- CEO's 3rd liposome company following 2 drug approvals; President's 2nd
- Seasoned management team with big pharma background
- ~120 employees (4 MDs, 20PhDs) with liposomal science expertise

✓ LipAD[®] Lipid-Assembled Drug Delivery platforms

- BioSeizer[®] sustained release
- **NanoX**[™] tissue-targeted delivery, validated by 2 approved drugs

✓ Diverse pipeline, all featuring known APIs

- Late stage 505(b)(2) programs in pain (TLC599 & TLC590), ophthalmology (TLC399) and oncology (TLC178)
- Infectious diseases (TLC19 & Ampholipad[™])

✓ Strong global IP protection

- Wholly owned product candidates & technology platforms
- 257 patents worldwide 160 issued / 97 applications

✓ Public company with distinguished reputation

- Dual-listed on Nasdaq (TLC) & Taipei Exchange (4152)
- The only biotech company to be ranked top 5% in corporate governance evaluation six years running

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



Lipid-based drug delivery platforms designed to create innovative products





| | Preclinical | Phase I | Phase II | Phase III | Market Authorization |
|---------------------|---|----------------------------|----------|-----------|-------------------------|
| Pain Management | | | | | |
| TLC599 | Osteoarthritis pair | 1 | | | |
| TLC590 | Postsurgical pain | | | | |
| Ophthalmology | | | | | |
| TLC399 | Macular edema | | | | |
| Oncology | | | | | |
| TLC178 | Adult advanced maligr Pediatric RMS ² | nancies / STS ¹ | | | |
| Infectious Diseases | | | | | |
| Ampholipad™ | Systemic fungal infect | ions (AmBisome® gene | eric) | | |
| TLC19 | COVID-19 / lung disea | ases | | | |

¹ Soft tissue sarcoma (STS); Orphan Drug Designation (ODD)

² Pediatric rhabdomyosarcoma (RMS); designated Drug for Rare Pediatric Disease (RPD)

-10

Imminent milestones







Ampholipad™ Worldwide partnerships

7

Osteoarthritis (OA) Pain Program

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



tlc

Osteoarthritis (OA) current landscape Unmet medical need for a safe, effective, and longlasting treatment for OA pain 32.5 \$65.5 300 million billion million cases in the annual global US medical cost in (1 in 7 cases² US¹ adults1) **Available** Main Drawbacks³ Treatment Limited efficacy **NSAIDs** Gastrointestinal side effects Grade 2 Grade 1 Grade 3 Grade 4 • Psychological addiction / abuse Opioids Sedation, dizziness, nausea, vomiting, Acetaminophen dependence, tolerance, respiratory depression Short efficacy, lacks sustained release Steroids IR steroid Safety concerns (chondrotoxicity) Viscosupplements Possible cartilage damage Opioids Repeat administration efficacy & safety not ER steroid

^{1.}"A National Public Health Agenda for Osteoarthritis." Osteoarthritis Action Alliance, 2020, oaaction.unc.edu/oa-agenda/.^{2.} "International Osteoarthritis Foundation." OAFI Foundation, www.oafifoundation.com/en/.³ National Institutes of Health. FACT SHEET - Osteoarthritis., 2010

Hyaluronic

(viscosupplement)

acid (HA)

demonstrated

Inconclusive efficacy

Potential joint fluid build up/inflammation

TLC599

nee Arthroplast



TLC599 target product profile Fast onset, long lasting, low toxicity non-opioid intraarticular injection for OA pain



6 months of pain relief

- with a single shot
- demonstrated by Phase II data
- longest duration seen in steroid injections

Safer API & formulation

- than existing IR & ER steroid injections
- dexamethasone is 5X more potent than triamcinolone acetonide and less toxic

1 vial administration

- simple administration process
- no need for mixing and waiting

- minimal cartilage toxicity
- Potential ameliorative
 effect
- indicated in preclinical & Phase II MRI studies

400nm

- contrived formulation and ideal particle size
- improve drug retention in joint



- to allow potential expanded indications
- hip, shoulder, hand









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



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)

Phase II data: pain reduction TLC599 significantly reduced pain *at* and *through* every scheduled visit



* Statistical significance (p<0.05)

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



WOMAC \geq 30% Durable Response



* Statistical significance

Pain score reduction of \geq 30% = clinically important difference p-values from Logistic regression model of WOMAC pain vs Placebo

- TLC599 showed statistical significance against placebo at every scheduled visit in WOMAC Pain, VAS Pain & Durable Response
- WOMAC Function & WOMAC Stiffness also showed same pain reduction pattern

Phase II data: safety & rescue medication use TLC599 is safe, with less acetaminophen consumption at every single time point



- Treatment-emergent adverse events (TEAEs) among all groups were comparable
- No life-threatening treatment-related TEAE; no unexpected safety signals
- No deaths, no treatment related serious adverse events (SAEs)
- 50% patients in TLC599 12mg group did not take any acetaminophen during the first 12 weeks
- After 12 weeks, median acetaminophen consumption in placebo group was 5-8 times that of TLC599 12mg group



Phase II knee MRI data: cartilage safety TLC599 demonstrated cartilage protection / delay in cartilage degeneration



Articular cartilage deterioration was assessed using semi-quantitative magnetic resonance imaging (MRI) Osteoarthritis Knee Scoring (MOAKS) instrument





Phase III: ongoing pivotal clinical trial "EXCELLENCE" global trial design



- Multi-center, randomized, double-blind, placebo- and active comparator-controlled Phase III pivotal study
- 46 sites in the US and Australia
- Evaluation of safety and efficacy of single and repeated doses in ~500 knee OA patients (KL Grade 2-3)



- Primary efficacy endpoint for single administration:
 - Change from BL in WOMAC pain vs placebo at Week 16
- Key secondary endpoints:
 - Change from BL in WOMAC Pain/Function vs placebo/DSP at Weeks 16, 20, 24, patient global impression of change (PGIC)
- Efficacy will also be assessed for the repeated administration by WOMAC Pain/Function scores vs placebo
- Patient enrollment COMPLETE

Post-Surgical Pain Program

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



tlc





Current landscape: postsurgical pain management Demand for a safe and long-lasting non-opioid to curb the opioid crisis





¹ Research and Markets. ² Infiltration of Local Anesthetics for Postoperative Analgesia. Pfiedler Enterprises. 2015. ³ Gan, Tong J. "Poorly controlled postoperative pain: prevalence, consequences, and prevention." Journal of pain research vol. 10 2287-2298. 25 Sep. 2017, doi:10.2147/JPR.S144066⁴ Guidance for Industry. Sterile Drug Products Produced by Aseptic Processing — Current Good Manufacturing Practice. 2004. ⁵⁶ 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



TLC590 target product profile Fast onset, long lasting, non-opioid postsurgical local **tlc**[®] anesthetic

168 hours

- demonstrated by Phase I/II data in hernia repair surgery &
- Phase II data in bunionectomy



- TLC590 is a nonopioid, therefore nonaddictive
- patients remained opioid-free or extended time to first opioid rescue



Cryo-EM image of TLC590

Unchanged clinical practice

- administration of this anesthetic is identical to current SOC
- no need for physicians to learn new administration procedure



- reduced toxicity with proprietary formulation
- ropivacaine has lower cardiac & central nervous system local anesthetic systemic toxicity (LAST) than bupivacaine





Phase I/II data – pain reduction in hernia repair surgery TLC590 reduced more pain than ropivacaine after hernia repair surgery through 7 days





- All four doses of TLC590 resulted in greater reductions in pain than standard ropivacaine as measured by AUC at every interval through 96 hours
- TLC590 570mg is not MTD, high dose could apply to other large wound surgeries
- TLC590 475mg vs standard ropivacaine, extremely durable, statistically significant and clinically meaningful pain reduction; differences maintained through 1 week



Phase I/II data – rescue opioid usage TLC590 reduced opioid use & improved time to first opioid use





- 58.3% of patients in the TLC590 475mg group remained opioid-free through the entire duration of the study
- Mean total opioid consumption was 54% less than that of the ropivacaine group through 96 hours post-surgery.



Phase II data – pain reduction in bunionectomy TLC590 reduced more pain than placebo and bupivacaine after bunionectomy thru 168 hours



- The overall reduction in pain intensity by TLC590 was greater than placebo as well as bupivacaine at every time interval from 0 to 168 hours
- TLC590 achieved statistically significant pain relief over both placebo and bupivacaine 0-12, 0-24, 0-36 and 0-48 hours
- TLC590 is well tolerated, safety profile comparable to bupivacaine and placebo
- Most adverse events were mild and unrelated to the treatment; no serious adverse events in TLC590 group



Phase II data - bunionectomy, post hoc analysis of 3 of 4 sites Statistically significant pain relief at nearly all time points



Rescue opioid consumption:

- TLC590 significantly delayed time to first opioid use vs placebo
- Total opioid consumption of TLC590 was less than placebo and bupivacaine at every time point through 168 hours, with statistical significance against placebo at 0-12, 0-24, 0-36 and 0-48 hours

Ophthalmic Disease Program **tlc**

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





| Available Treatment | Main Drawbacks |
|----------------------------|--|
| Anti-VEGF | Ineffective in some population |
| Dexamethasone injection | 1-3 months efficacy Implant takes 6 months to dissolve 22G needle causes bleeding in 23% of patients³ |



Dexamethasone implant 22G / 0.7176mm

¹ Song, P., Xu, Y., Zha, M., Zhang, Y., & Rudan, I. (2019). Global epidemiology of retinal vein occlusion: a systematic review and meta-analysis of prevalence, incidence, and risk factors. Journal of Global Health, 9(1). https://doi.org/10.7189/jogh.09.010427 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



TLC399 target product profile Fast acting, long lasting non-implant DSP intravitreal injection



5 >6 months long-lasting

- increase in best corrected visual acuity (BCVA)
- decrease in ocular central subfield thickness (CST)



- reduced risk of conjunctival hemorrhaging
- reduced risk of infections





- no need for surgical removal of undissolved implant
- smaller injection site



- 30G needle used
- 2.3 times smaller than diameter of current marketed steroid injection





Phase I clinical trial Decrease in CST up to 12 months after single injection (0.6mg DSP)





Central subfield thickness (CST):

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

Soft Tissue Sarcoma (STS) Program

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



tlc







Vinorelbine (VNB) + cyclophosphamide combo as therapy agent or VNB alone for palliative therapy¹ for RMS, but with significant dose-limiting myelosuppression^{2 3}

Vinorelbine + gemcitabine (Gem) combo as active regimen for STS & NSCLC^{4 5}

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.



TLC178 target product profile Safer, less toxic, more durable anticancer drug with RPD & ODD designations



Selective drug delivery

 improved, selective delivery to tumor vs non-tumor tissue



- in treatment response rate
- improved duration of response



Cryo-EM image of TLC178





 of vinorelbine at tumor site, conferring higher drug activity

Higher dose intensity

 less drug to non-tumor sites, reducing myelosuppression and enabling higher dose intensity



- Rare Pediatric Disease designation for rhabdomyosarcoma
- **ODD** for STS
 - Orphan Drug designation for soft tissue sarcoma

<u>کی</u> دوریکی

Preclinical studies TLC178 showed significantly better tumor control in in tlc^v fibrosarcoma, RMS & NSCLC models

Fibrosarcoma Model



TLC178 showed significant tumor inhibition response vs doxorubicin in fibrosarcoma model TLC178 showed significantly better tumor control than free vinorelbine in RMS model TLC178 showed significantly superior tumor control over VNB & VNB + Gem in NSCLC model

Post first drug injection day

NSCLC Model

2500

2000

1500

1000

500

0

2

Tumor volume (mm³)

Saline

-▲- 5mg/kg VNB

5mg/kg TLC178

-△- 5mg/kg VNB + 25mg/kg Gem

— 5mg/kg TLC178 + 25mg/kg Gem







10

12

14



Phase I/II clinical trial TLC178 showed disease control in various tumors, especially STS



- Phase I/II, open-label, dose escalation study
- 33 patients have been treated; maximum tolerated dose (MTD) found to be 31 mg/m²
- 50% soft tissue sarcoma (STS) patients had durable stable disease (SD) (24 to 31 mg/m² dose) for at least 4 months
- Disease control rate (DCR) in all types of tumor was found to be 41%, of which...
 - One patient with apocrine adenocarcinoma (28 mg/m² dose level) completed study and showed partial response (PR) up to the 10th month follow-up
 - Two patients (31 mg/m² dose level) with NSCLC and pancreas cancer, respectively, had durable SD for at least 8 months
 - One patient with metastatic ovarian cancer (31 mg/m² dose level) had durable SD for at least 4 months

Ampholipad[™]

tlc®

Complex generic of Gilead's AmBisome[®] for systemic fungal infections





Ampholipad[™] Worldwide marketing & licensing





- Ampholipad[™] is the only drug to have achieved bioequivalence to Gilead's AmBisome[®] in all three (total, encapsulated and free) forms, demonstrating its sameness
- AmBisome is currently not available in China

Lung Disease Programs



Sustained release liposomal inhalable formulations for severe acute and chronic pulmonary diseases







New subsidiary: InspirMed Best-in-class in inhalation for treatment in both acute and chronic lung diseases



Aqueous Core
 Proprietary loading
 Lipophilic
 Membrane
 Toxicity/solubility

formulations

Liposomal lung delivery platform

- More options for payload selection
- Efficient particle size for enhanced delivery
- Reduced dosing frequency by prolonging drug residence time in respiratory system
- Direct drug delivering to the lung with limited systemic exposure
- Robust, scalable & replicable manufacturing

Acute lung disease

- COVID-19
- Chronic lung disease
 - Rheumatoid Arthritis-Associated Interstitial Lung Disease (RA-ILD)
 - Childhood interstitial lung disease (chILD)
 - Idiopathic pulmonary fibrosis (IPF)





InspirMed platform technology



Low dose with increased exposure to lungs and decreased exposure to heart and blood, cost-effective, easily accessible, user-friendly

Much lower dose compared to orally or intravenously administered regimens

Inhalation directly to the lungs to increase exposure at the site of disease which other routes of administration cannot achieve

Lowered systemic toxicity

Patient could self-administer with a light, portable vibration mesh nebulizer



Source: ¹ Jianghong Fan, Xinyuan Zhang, Jiang Liu, Yuching Yang, Nan Zheng, Qi Liu, Kimberly Bergman, Kellie Reynolds, Shiew-Mei Huang, Hao Zhu, Yaning Wang, Connecting hydroxychloroquine in vitro antiviral activity to in vivo concentration for prediction of antiviral effect: a critical step in treating COVID-19 patients, Clinical Infectious Diseases, ciaa623, <u>https://doi.org/10.1093/cid/ciaa623</u>

² https://www.biorxiv.org/content/10.1101/2020.07.09.196618v1.full.pdf

Preclinical data



TLC19 increased lung exposure and decreased blood and heart exposure

ICQ-IV

HCQ-IT

Liposomal HCQ-IT









Imminent milestones





Investment Highlights



✓ Transparent company with veteran team

Ranked top 5% every year in corporate governance evaluation

✓ De-risked platforms with multiple shots on goal

- BioSeizer[®] sustained release TLC590 (Ph2), TLC599 (Ph3)
- NanoX[™] tissue-targeted delivery, proven in 2 approved drugs including Ampholipad[™]

Multiple late-stage programs with near-term milestones

- TLC599 for knee OA Phase 3 results 2H2021
- TLC590 for postsurgical pain Phase 3 ready
- Ampholipad[™] China MAA accepted, global registration planned
- All programs 505(b)(2) regulatory pathway for expedited approval

Opportunity to expand indications

Thank You

tic %

www.tlcbio.com

Delivering Hope for Life[™]