

Sirnaomics Ltd.

GalAhead™ Platform & Programs March 15, 2022 Boston



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Sirnaomics: Introduction

Proprietary delivery platforms

Proprietary PNP and novel GalNAc RNAi delivery platforms

First RNAi oncology success

First to achieve positive Phase IIa clinical outcomes in oncology

Broad therapeutic utility

Oncology, fibrosis, medical aesthetics, antiviral, cardiovascular and cardiometabolic diseases, etc.

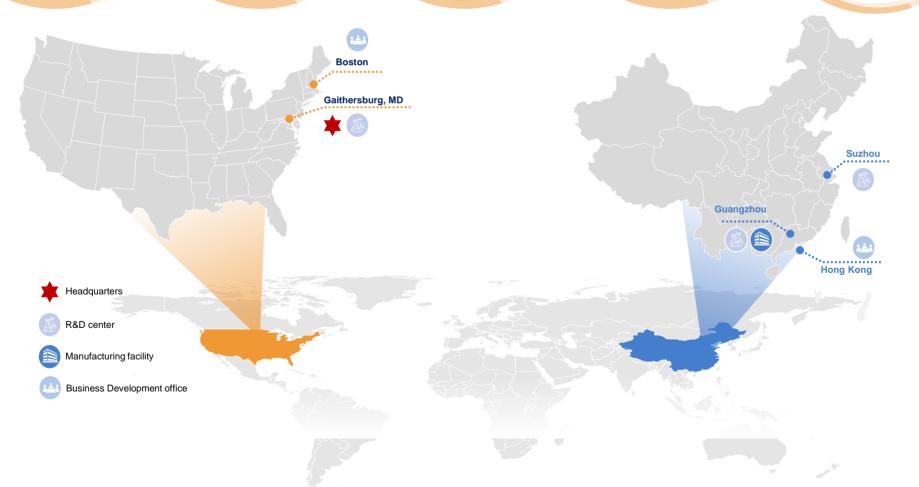
Technology driven platforms

 Proprietary algorithm for siRNA drug design
 Microfluidic technology fo

Microfluidic technology for commercial-scale manufacturing

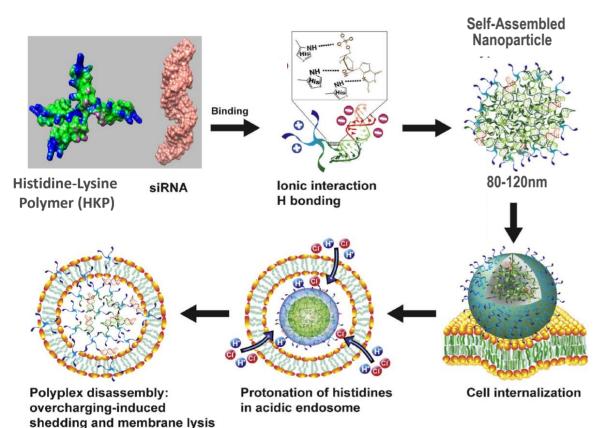
Successful fund raising

Raised >\$300M since inception;
IPO in Dec 2021





Peptide Nanoparticle (PNP) Technology: Principles



PNP delivery

- Biodegradable histidine-lysine branched polymer
- Envelops and protects siRNA to facilitate delivery into the targeted tissue and cell
- Histidine mediated protonation to facilitate siRNA payload release
- Nanoparticle size is controllable to diversify tissue distribution and enhance safety
- Addressing key cell types in liver beyond hepatocyte
- Multiple routes of administration: intradermal/tumoral, and systemic (systemic tox ongoing)



Sirnaomics: Programs

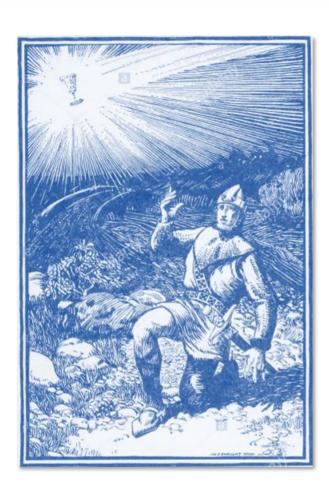


lotes: * denotes our core product ** denotes orphan drug

^{1.} Liver cancer (basket) includes cholangicarcinoma, hepatocellular carcinoma, liver metastases etc. 2. We filed our IND in China in June 2021, which is currently awaiting approval from NMPA, for study sites in China. The study sites will be part of a global multicenter clinical trials for our Phase IIb clinical trial for isSCC. 3. We expect to file the IND in China as part of the global multicenter clinical trials. 4. We expect to file the IND solely for HCC in China as part of the global multicenter clinical trials. 5. Studies in combination with anti-PD-(L)1 inhibitors conducted pursuant to collaborations with Innovent and Shanghai Junshi. 6. Research and development conducted by our subsidiary RNAimmune.



GalAhead™: Sirnaomics' proprietary GalNAc-siRNA platform



GalAhead™ technology incorporates multiple components

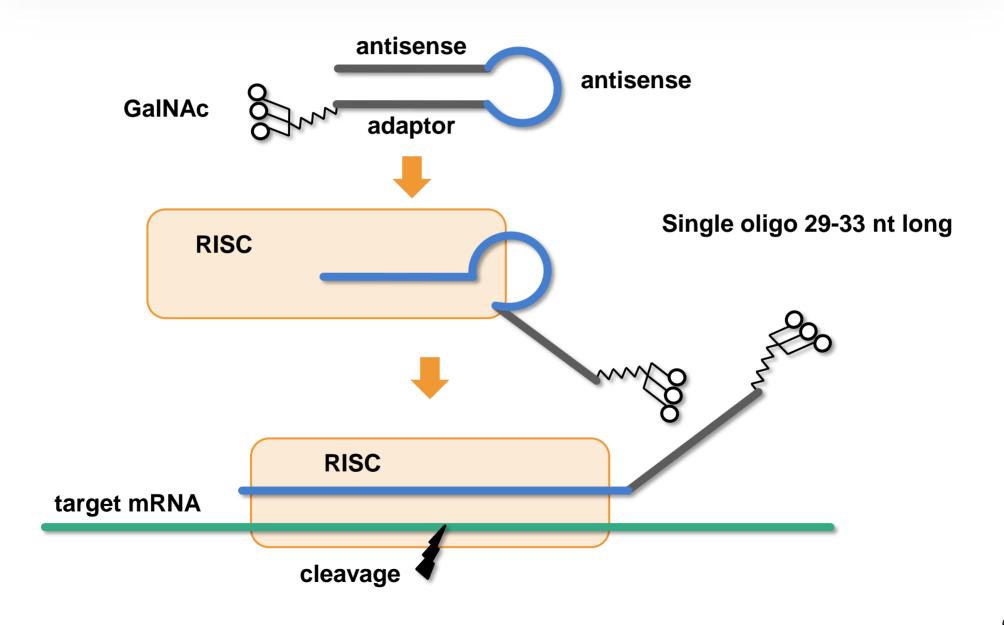
mxRNA™: miniaturized single-targeting RNAi triggers

muRNA™: multi-unit multi-targeting RNAi triggers

NB: pronounced as in Sir **Galahad**, a knight of the King Arthur's Round Table and one of only three achievers of the Holy Grail

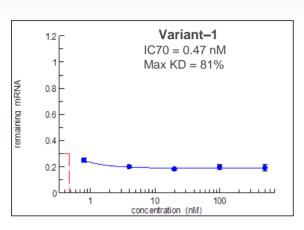


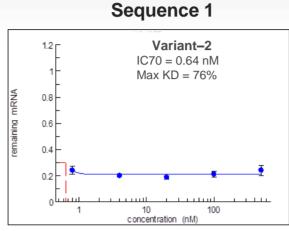
mxRNAs™: Proposed mechanism of action (MOA)

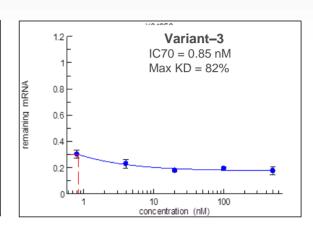




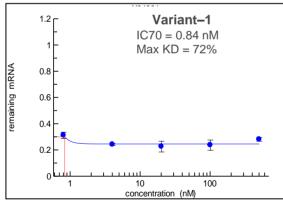
mxRNA™: Remarkable activity in primary hepatocytes

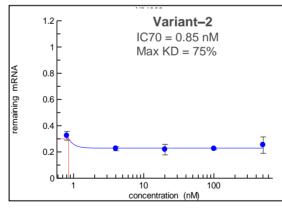


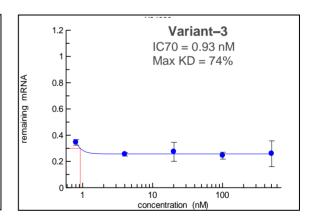












Cells: primary mouse hepatocytes

Concentrations: 500, 100, 20, 4.0, 0.8 nM

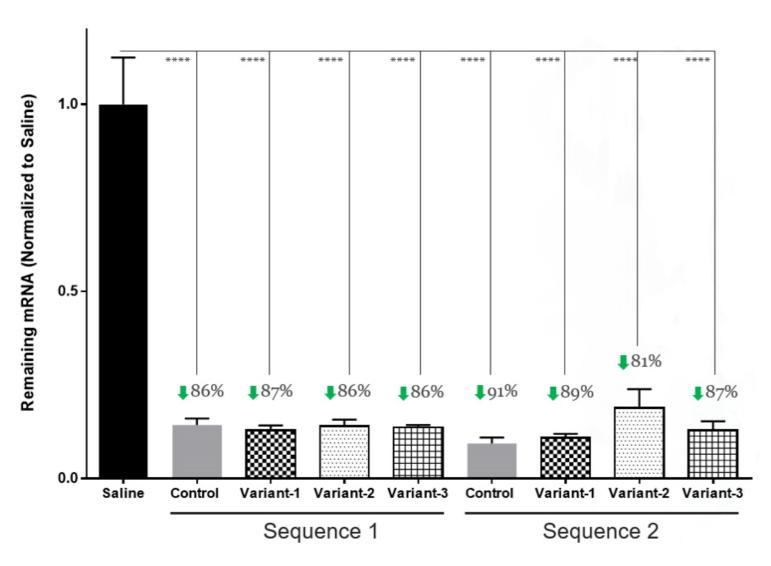
Time-point: 72 hours

Delivery: passive uptake

Readout: TMPRSS6 mRNA



mxRNA™: Outstanding in vivo activity (single dose)



Animals: mice

Dose: 10 mg/kg

Timepoint: 5 days

Readout: TMPRSS6 mRNA

Statistics:

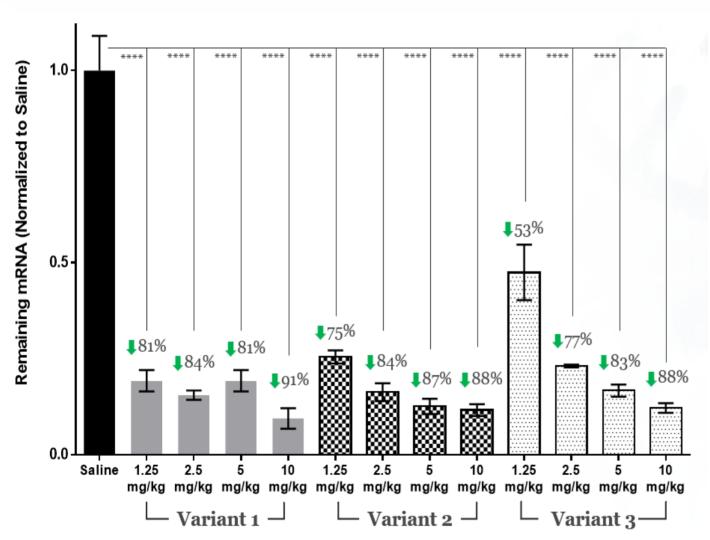
One-Way ANOVA

Post-hoc analysis with Tukey's multiple comparisons test

**** = p < 0.0001



mxRNA™: Outstanding in vivo activity (dose response)



Study Design

- 1, 2 & 3 configuration for sequence 1
- Doses: 1.25 mg/kg, 2.5 mg/kg, 5 mg/kg, 10 mg/kg
- N= 4 C57/Bl6 mice/group
- 5 day timepoint
- bDNA analysis: TMPRSS6 mRNA

from liver tissues

Statistics:

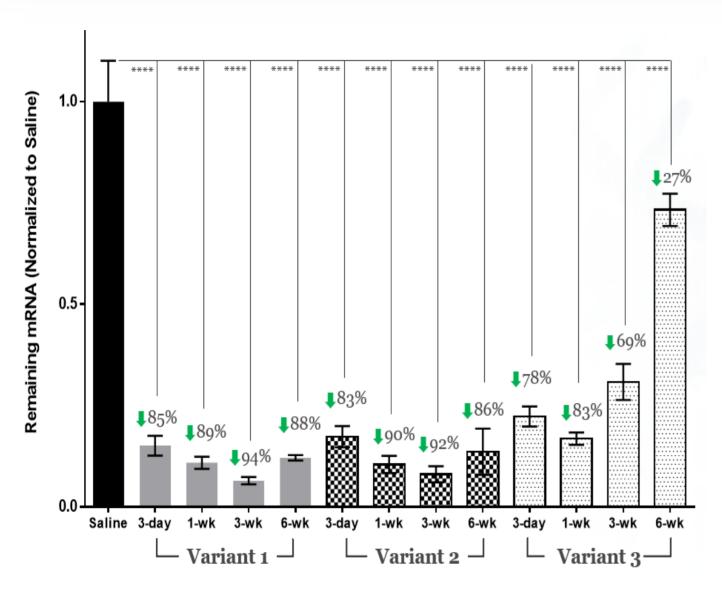
One-Way ANOVA Post-hoc analysis with Tukey's multiple comparisons test **** = p<0.0001

Note:

1. For 10mg/kg dose group – liver samples collected during Single Dose study were included in the bDNA assay



mxRNA™: Outstanding in vivo activity (duration response)



Study Design

• 1, 2 & 3 configuration for

sequence 1

- Dose: 3mg/kg
- N= 4 C57/Bl6 mice/group
- Timepoints: 3-day, 1-week, 3-

week, 6-week

bDNA analysis: TMPRSS6 mRNA

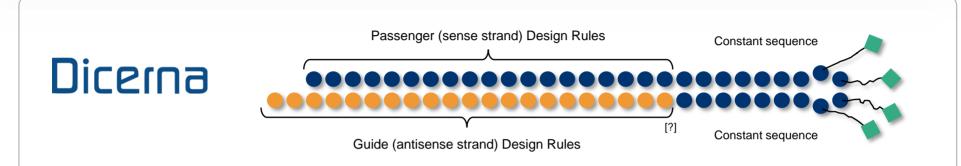
from liver tissues

Statistics:

One-Way ANOVA
Post-hoc analysis with Tukey's
multiple comparisons test
**** = p<0.0001



mxRNA™: Potential CMC advantage



Synthesis one: 36 nucleotidesSynthesis two: 20 nucleotides

Annealing

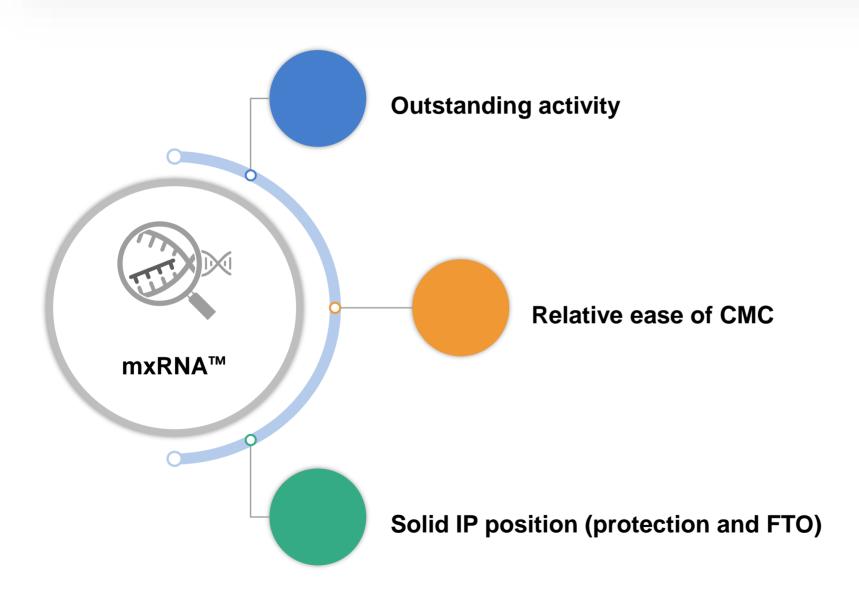


Synthesis one: 31-33 nucleotides





mxRNA™: Potential advantage package



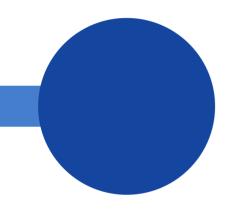


GalAhead™ Programs: March 2022

Drug	Target	Indication	Bioinformatics	Discovery	Candidate Nomination	IND Enabling	IND
STP122G	Factor XI	Anticoagulation/Thrombosis					
STP125G	Non-disclosed	Hypertriglyceridemia					
STP144G	Complement Factor B	Complement-mediated diseases					
STP135G	Non-disclosed	Hypercholesterolemia					
STP145G	Non-disclosed	Complement-mediated diseases					
STP146G	Non-disclosed	Complement-mediated diseases					

We are planning to file our first GalAhead IND later this year, followed by several more in 2023.

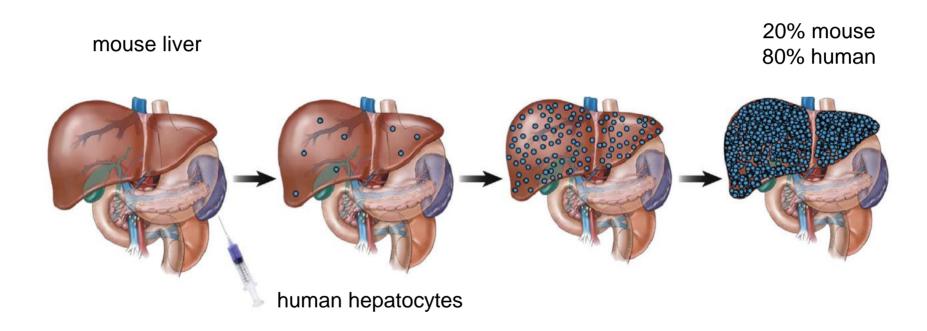




STP125G (non-disclosed target)

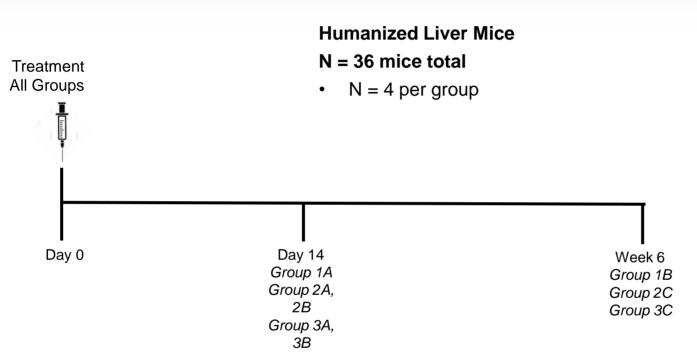


Humanized liver mouse model





STP125G: Humanized liver mice study design



Control (PBS) Day 14	A28 (14-4)mF mxRNA Day 14	A277 (12-5) mxRNA Day 14	Control (PBS) Week 6	A28 (14-4)mF mxRNA Week 6	A277 (12-5) mxRNA Week 6
Group 1A	Group 2A (10mg/kg)	Group 3A (10mg/kg)	Group 1B	Group 2C (10mg/kg)	Group 3C (10mg/kg)
	Group 2B (30mg/kg)	Group 3B (30mg/kg)			

Animals:

humanized mice

Treatment & sample collection site:

DaVinci (MA)

Test compounds:

- A28(14-4)mF mxRNA
- A277(12-5) mxRNA

Dosing:

- 10 mg/kg
- 30 mg/kg

Administration:

subcutaneous

Timepoints:

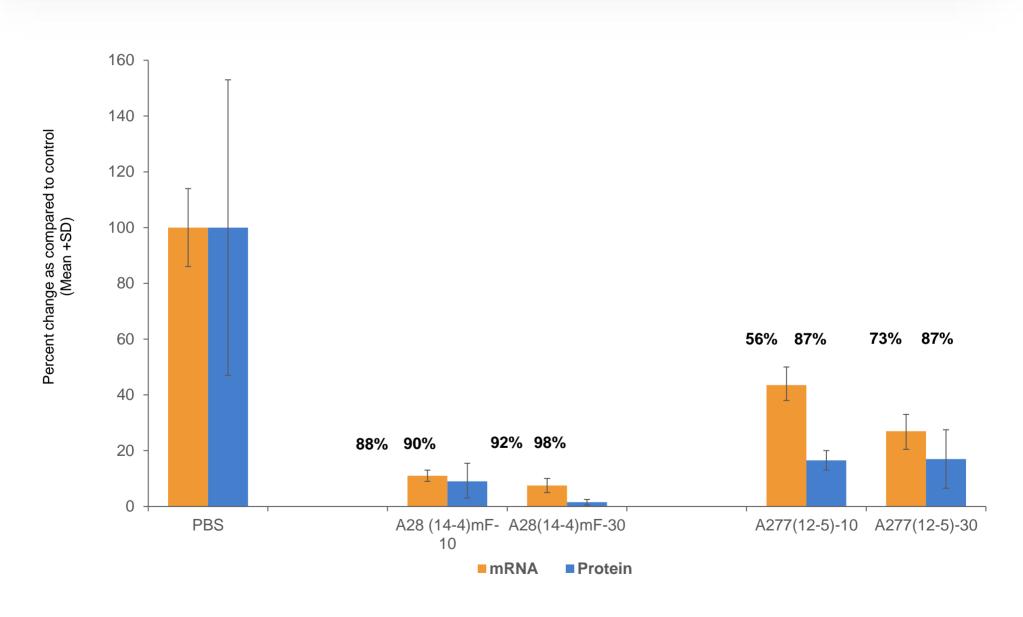
- 2 weeks (dose response 10mg/kg and 30mg/kg)
- 6 weeks (duration response 10mg/kg)

Readouts:

- qPCR (mRNA)
- ELISA (protein)



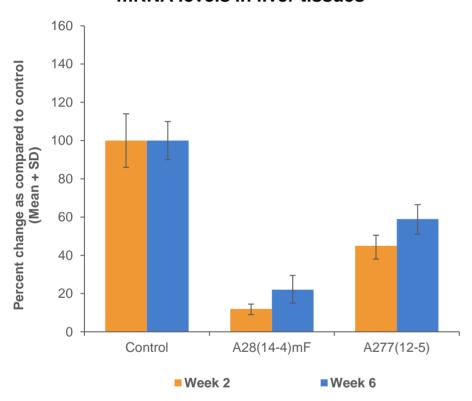
STP125G: Dose response in vivo (Week 2)



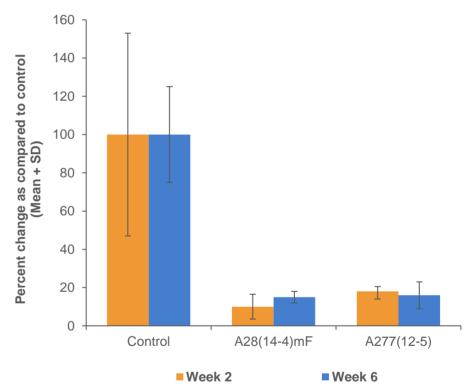


STP125G: Knockdown duration

mRNA levels in liver tissues



Protein levels in plasma (ELISA)



- A28(14-4)mF
 - 88% suppression at week 2 and maintained 78% at week 6
- A277(12-5)
 - 56% suppression at week 2 and maintained 42% at week 6
 - Excludes data from animal that was an outlier

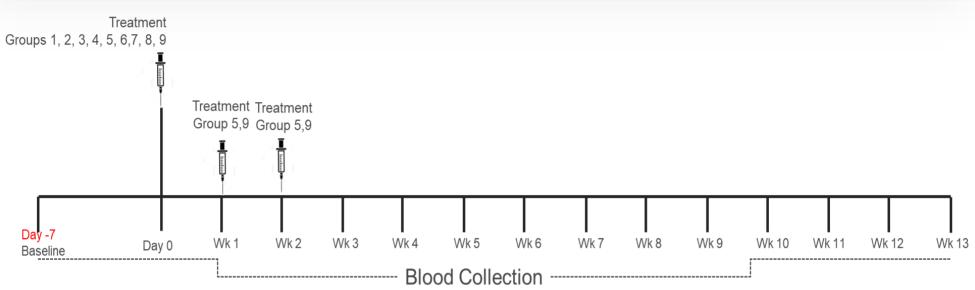
- A28(14-4)mF
 - 90% reduction at week 2 that was sustained at 85% on week 6
- A277(12-5)
 - 83% reduction at week 2 that was sustained at 84% at week 6
 - Excludes data from animal that was an outlier







STP144G: Non-human primates (NHP) study design



Groups:

N = 36 NHP total

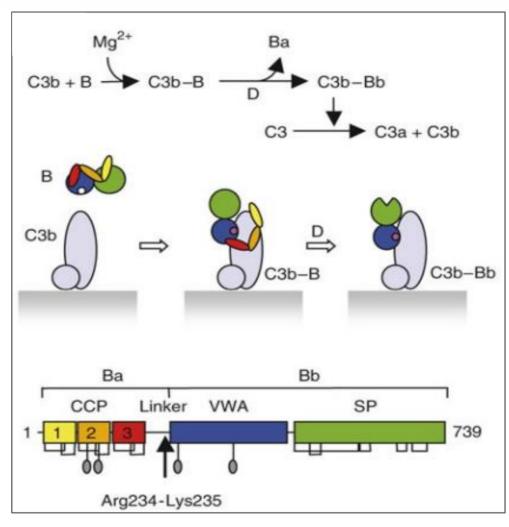
- Group 1 (Saline) Control (n=4)
- N = 4 NHP/group •
- Group 2 (106-13(4)) – 1 mg/kg one time injection (n=4)
 - Group 3 (106-13(4))- 3 mg/kg one time injection (n=4)
 - Group 4 (106-13(4))- 10 mg/kg one time injection (n=4)
 - Group 5 (106-13(4))- 3 mg/kg three injections once weekly (n=4) 3 Tx cycle
 - Group 6 (13-5) -- 1 mg/kg one time injection (n=4)
 - Group 7 (13-5) - 3 mg/kg one time injection (n=4)
 - Group 8 (13-5) – 10 mg/kg one time injection (n=4)
 - Group 9 (13-5) - 3 mg/kg three injections once weekly (n=4) 3 Tx cycle

Outcomes

- Bb protein measurement
- Hematology and clinical chemistry –every two weeks (wk2, 4, 6, 8, 10, 13)



Complement Factor B: Bb assay background

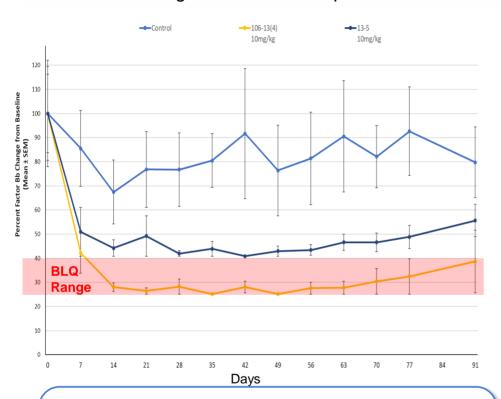


From Midler FJ et al (2007) Nat Struct & Mol Biol (14) 224-8



STP144G: Bb levels with lead compounds in NHP

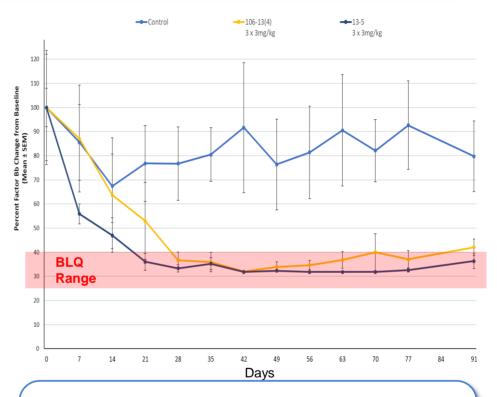
Single Treatment Comparison



Max reduction of Factor Bb and duration of response

- 106-13(4)
 - Max suppression of 74% at week 5
 - >60% reduction from week 2 to week 13
 - Mean BLQ from week 2 to week 10
- 13-5
 - Max suppression of 59% at week 6
 - >50% reduction from week 2 to week 13
 - No Mean BLQ for any of the timepoints

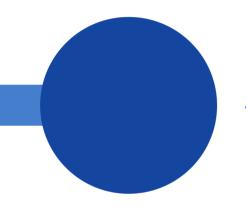
Multiple Treatment Comparison



Max reduction of Factor Bb and duration of response

- 106-13(4)
 - Max suppression of 68% at week 6
 - >50% reduction from week 4 to week 13
 - Mean BLQ at week 6
- 13-5
 - Max suppression of 68% at week 6
 - >50% reduction from week 2 to week 13
 - Mean BLQ from week 6 to week 11

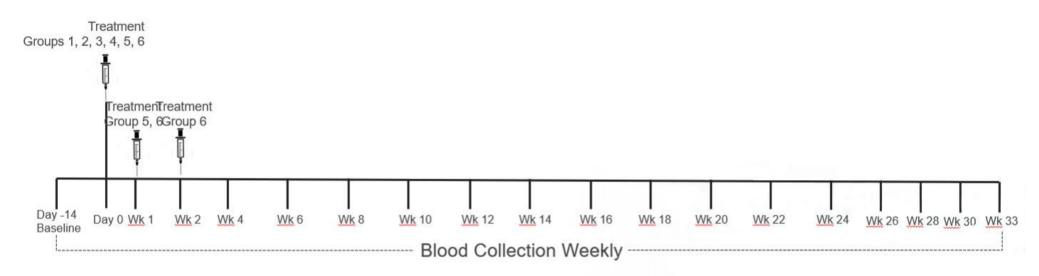




STP122G (Coagulation Factor XI)



Factor XI: Knockdown in non-human primates (NHP) study design



N = 24 NHP total

N = 4 NHP/group

Groups:

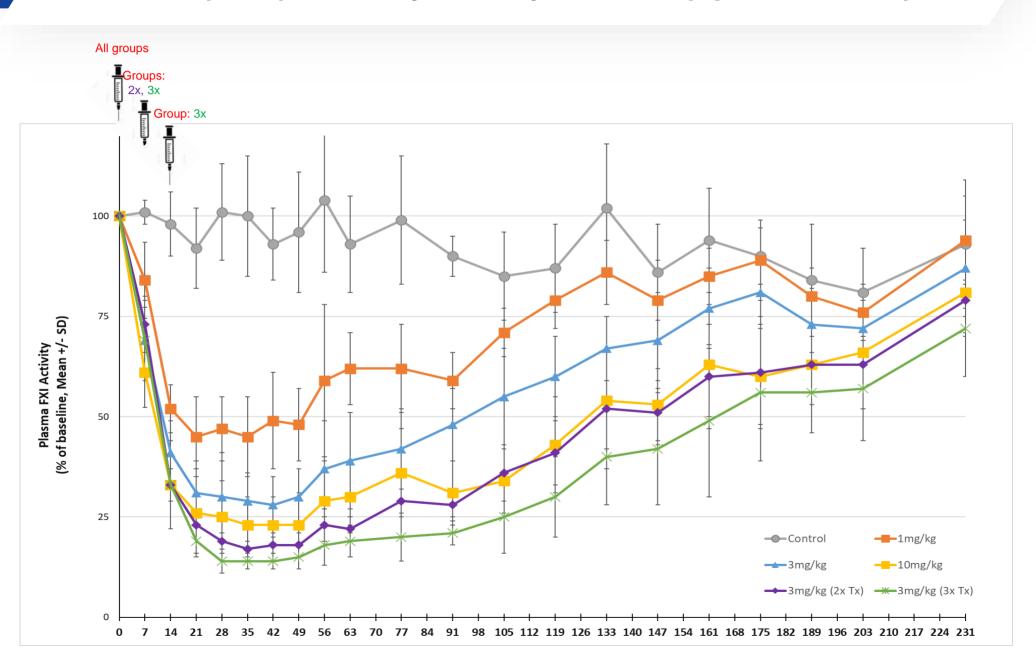
- Group 1 (Saline) Control (n=4)
- Group 2 (91-conv-31)- 1mg/kg one time injection (n=4)
- Group 3 (91-conv-31)- 3 mg/kg one time injection (n=4)
- Group 4 (91-conv-31)- 10 mg/kg one time injection (n=4)
- Group 5 (91-conv-31)- 3 mg/kg weekly for two weeks (n=4) 2 Tx cycle
- Group 6 (91-conv-31)- 3 mg/kg weekly for three weeks (n=4) 3
 Tx cycle

Outcomes

- · Primary endpoint: Factor XI plasma activity
- APTT (activated partial thromboplastin time, PT (prothrombin time)
- Hematology and clinical chemistry: baseline, Wk2, Wk6, Wk18



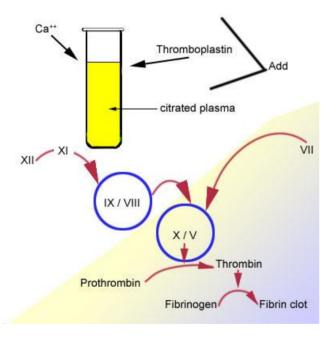
Factor XI (NHP): Primary activity readout (up to week 33)





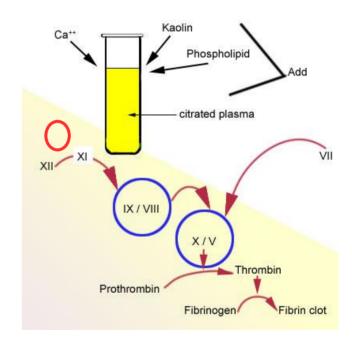
Factor XI (NHP): Secondary activity readout and pathway specificity

Extrinsic Pathway: Prothrombin time test (PT)



The prothrombin test specifically evaluates the presence of factors VII, V, and X, prothrombin, and fibrinogen

Intrinsic Pathway: Activated Partial Thromboplastin Time test (APTT)

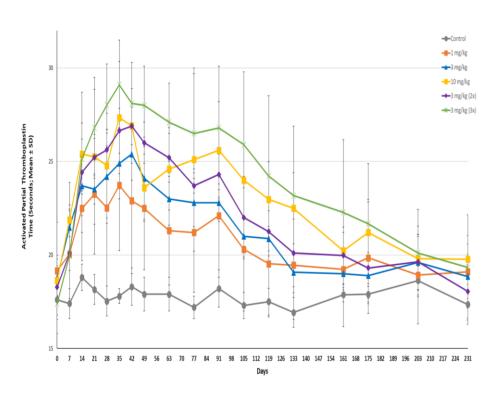


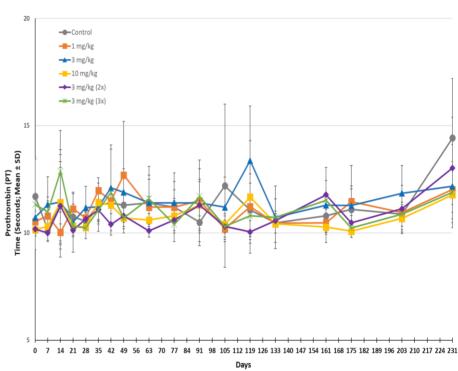
APTT measures the integrity of the intrinsic system (Factors XII, XI, VIII, IX) and common clotting pathways



Factor XI (NHP): Secondary activity readout and pathway specificity







- Reductions in plasma FXI activity correlated well with elevation of APTT
- · Dose dependent elevation of APTT

· No effect on PT values



Factor XI (NHP): Safety readouts

	Baseline (pre-treatment)		Week 2 (2 weeks post-treatment)		Week 6		Week 18		Week 26		Week 33							
	Control (Mean ±SD)		3mg/kg (3x)) (Mean ±SD)	Control (Mean ±SD)			Control (Mean ±SD)	10mg/kg (Mean ±SD)	3mg/kg (3x) (Mean ±SD)	Control (Mean ±SD)	10mg/kg (Mean ±SD)	3mg/kg (3x) (Mean ±SD)	Control (Mean ±SD)		3mg/kg (3x) (Mean ±SD)	Control (Mean ±SD)		
ALT (U/L)	47 ± 11	50 ± 19	66 ± 17	34 ± 6	44 ± 16	60 ± 8	37 ± 13	42 ± 16	53 ± 15	43 ± 19	43 ± 16	50 ± 20	46 ± 18	54 ± 22	65 ± 12	48 ± 28	44 ± 14	58 ± 10
AST (U/L)	47 ± 9	46 ± 6	66 ± 9	51 ± 12	48 ± 19	54 ± 10	49 ± 5	44 ± 3	54 ± 14	51 ± 5	59 ± 30	63 ± 9	50 ± 8	59 ± 25	67 ± 24	39 ± 6	39 ± 9	64 ± 14
ALP (U/L)	496 ± 150	603 ± 119	475 ± 111	526 ± 135	588 ± 74	473 ± 166	584 ± 151	627 ± 131	487 ± 166	581 ± 131	545 ± 45	591 ± 224	616 ± 140	623 ± 84	618 ± 170	616 ± 140	623 ± 84	618 ± 170
TBIL (umol/L)	3.6 ± 2.1	3.8 ± 1.3	4.2 ± 0.9	3.3 ± 0.4	3.6 ± 1	3.2 ± 1	3.3 ± 1.2	4.0 ± 1.6	3.8 ± 1.2	3.4 ± 1.2	3.4 ± 0.6	3.5 ± 2	4.3 ± 1.8	4.0 ± 0.8	4.2 ± 1.4	3.4 ± 1.5	4.2 ± 1.2	4.0 ± 1.1
Total Protein (g/L)	74 ± 4	73 ± 4	76 ± 2	72 ± 2	72 ± 4	73 ± 3	76 ± 5	74 ± 1	75 ± 2	73 ± 4	71 ± 2	72 ± 3	75 ± 3	74 ± 2	76 ± 3	74 ± 4	74 ± 1	73 ± 2
Platelets (10x3/uL)	399 ± 146	374 ± 93	430 ± 66	393 ± 113	381 ± 97	490 ± 58	363 ± 79	380 ± 69	462 ± 100	376 ± 101	343 ± 79	450 ± 99	387 ± 126	357 ± 74	450 ± 120	373 ± 102	375 ± 90	466 ± 88
RBCs (10x6/uL)	5.6 ± 0.3	5.9 ± 0.3	5.7 ± 0.1	5.2 ± 0.4	5.5 ± 0.1	5.3 ± 0.4	5.4 ± 0.3	5.7 ± 0.3	5.3 ± 0.4	5.4 ± 0.3	5.6 ± 0.2	5.4 ± 0.1	5.5 ± 0.6	6.0 ± 0.2	5.9 ± 0.4	5.8 ± 0.3	6.0 ± 0.2	5.9 ± 0.3
WBC (10X3/uL)	14.5 ± 3.8	11.9 ± 6.3	11.1 ± 4.3	13.3 ± 2.2	11.4 ± 3.3	10 ± 4.6	12.9 ± 1.9	11.3 ± 3.6	12.8 ± 4.8	10.8 ± 2.8	9.4 ± 4.2	11.5 ± 3.5	12.1 ± 2.5	9.4 ± 4.2	12.0 ± 2.9	11.3 ± 6.5	10.7 ± 3.9	9.7 ± 3.9
LDH	702 ± 201	856 ± 436	1156 ± 462	1128 ± 466	805 ± 458	1285 ± 527	811 ± 172	817 ± 314	996 ± 242	1045 ± 436	1178 ± 545	51607 ± 479	1044 ± 419	1205 ± 567	'1544 ± 480	560 ± 147	641 ± 361	911 ± 152
GLDH	21 ± 5	29 ± 18	36 ± 2	23 ± 2	25 ± 14	28 ± 11	25 ± 5	24 ± 14	28 ± 10	23 ± 1	21 ± 7	31 ± 9	24 ± 8	21 ± 10	37 ± 3	28 ± 6	25 ± 12	34 ± 5

- Selected representative readouts for high dose groups
- No elevations of liver function enzymes post-treatments
- No changes in hematology parameters post-treatments



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Questions?

