

Supplementary Information

Translational Modeling Identifies Synergism between Nanoparticle-Delivered miRNA-22 and Standard-of-Care Drugs in Triple-Negative Breast Cancer

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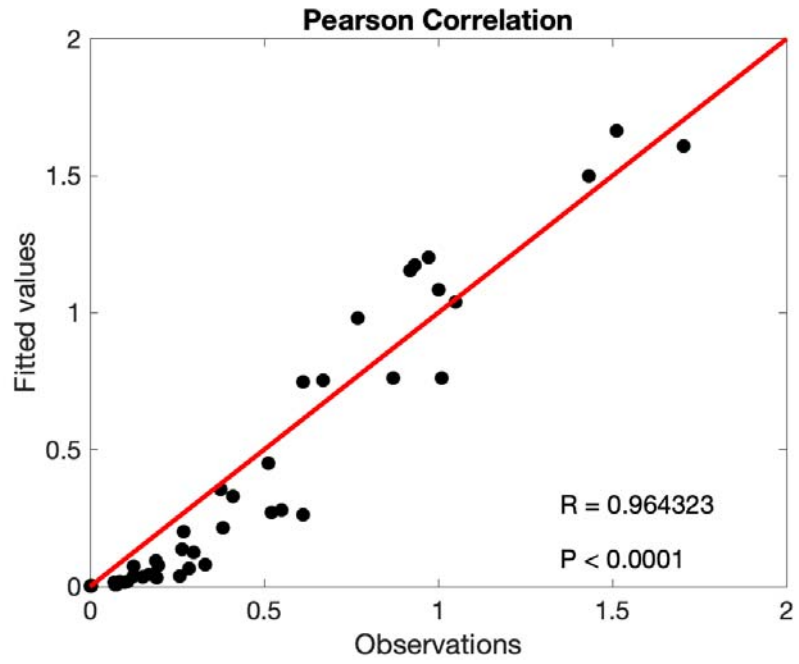


Figure S1. Pearson correlation of model fits to *in vivo* data shown in Figure 2.

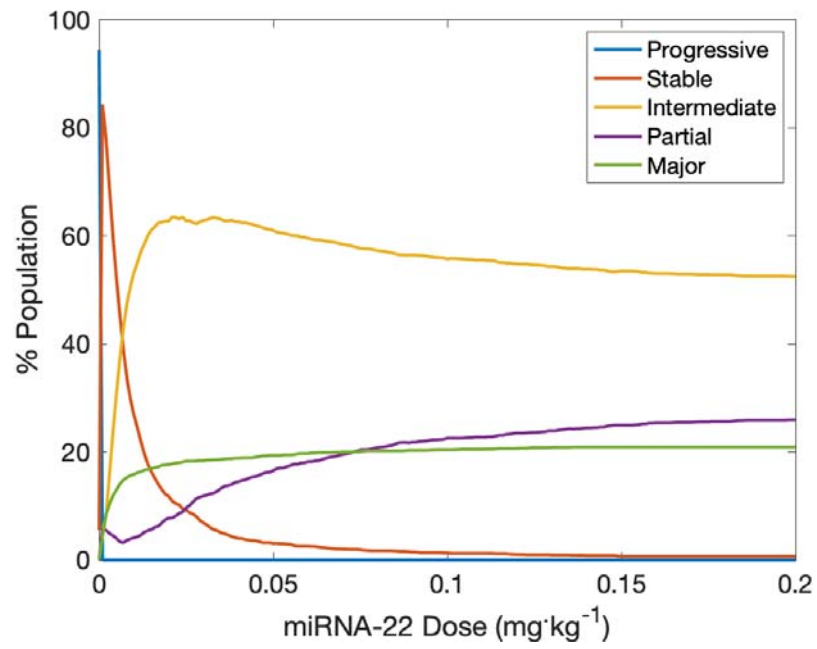


Figure S2. Population-scale dose-response relationship of miRNA-22 therapy.

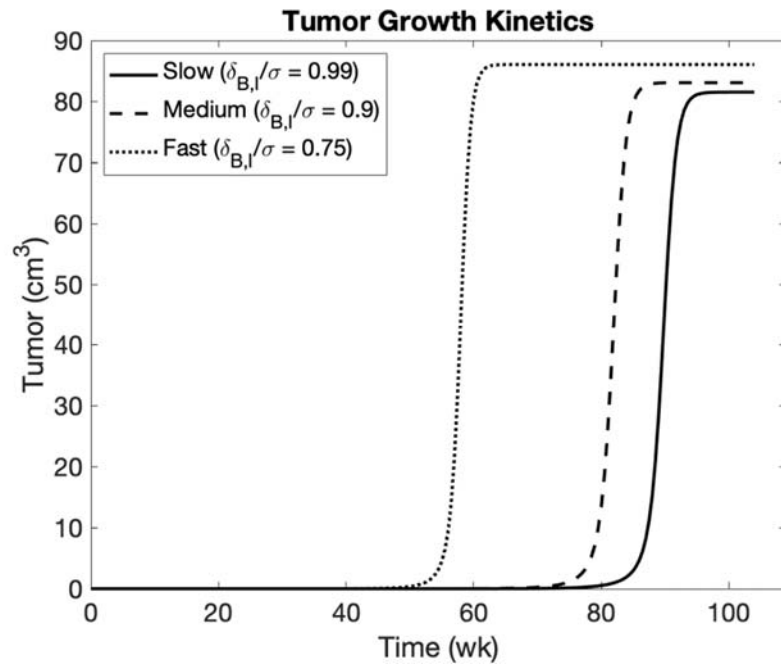


Figure S3. Tumor growth kinetics of slow-, medium-, and fast-growing tumors under the control conditions.

CompuSyn Report

Experiment Name: AAPS paper
Date: 7/14/21
File Name: C:\Users\prash\Desktop\report.cse
Description

Drug: mirna22 (mirna) [mg/kg]
Drug: dox (dox) [mg/kg]
Drug: ate (ate) [mg/kg]
Drug Combo: mirna+dox (mirdox) (mirna+dox)
Drug Combo: mirna+ate (mirate) (mirna+ate)
Drug Combo: mirnadoxate (mda) (mirna+dox+ate)

Data for Drug: mima [mg/kg]

Dose	Effect
0.01	0.2017
0.0311	0.3087
0.0522	0.3466
0.0733	0.3662
0.0944	0.3782
0.1156	0.3864
0.1367	0.3922
0.1578	0.3966
0.1789	0.4001
0.2	0.4029

10 data points entered.

X-int: -0.2695

Y-int: 0.08429 +/- 0.03407

m: 0.31277 +/- 0.02925

Dm: 0.53764

r: 0.96676

Data for Drug: dox [mg/kg]

Dose	Effect
0.01	0.0012
1.12	0.0589
2.23	0.087
3.34	0.1068
4.45	0.1225
5.56	0.1352
6.67	0.146
7.78	0.1553
8.89	0.1635

Dose Effect

10.0 0.1708

10 data points entered.

X-int: 1.81569**Y-int:** -1.3608 +/- 0.02420**m:** 0.74946 +/- 0.02588**Dm:** 65.4173**r:** 0.99526

Data for Drug: ate [mg/kg]

Dose Effect

0.01 0.08402

1.12 0.08454

2.23 0.08454

3.34 0.08455

4.45 0.08455

5.56 0.08455

6.67 0.08455

7.78 0.08455

8.89 0.08455

10.0 0.08455

10 data points entered.

X-int: 1033.99**Y-int:** -1.0352 +/- 1.13E-4**m:** 0.00100 +/- 1.20E-4**Dm:** Infinit**r:** 0.94670

Data for Non-Constant Combo: mirdox (mirna+dox)

Dose mirna Dose dox Effect

0.01 0.01 0.2064

0.0311 1.12 0.5982

0.0522 2.23 0.7995

0.0733 3.34 0.8892

0.0944 4.45 0.9291

0.1156 5.56 0.9493

0.1367 6.67 0.9609

0.1578 7.78 0.9683

0.1789 8.89 0.9733

0.2 10.0 0.9769

10 data points entered.

Data for Non-Constant Combo: mirate (mirna+ate)

Dose mirna Dose ate Effect

0.01 0.01 0.32318

Dose mirna	Dose ate	Effect
0.0311	1.12	0.44847
0.0522	2.23	0.49304
0.0733	3.34	0.51610
0.0944	4.45	0.53018
0.1156	5.56	0.53967
0.1367	6.67	0.54648
0.1578	7.78	0.55162
0.1789	8.89	0.55563
0.2	10.0	0.55885

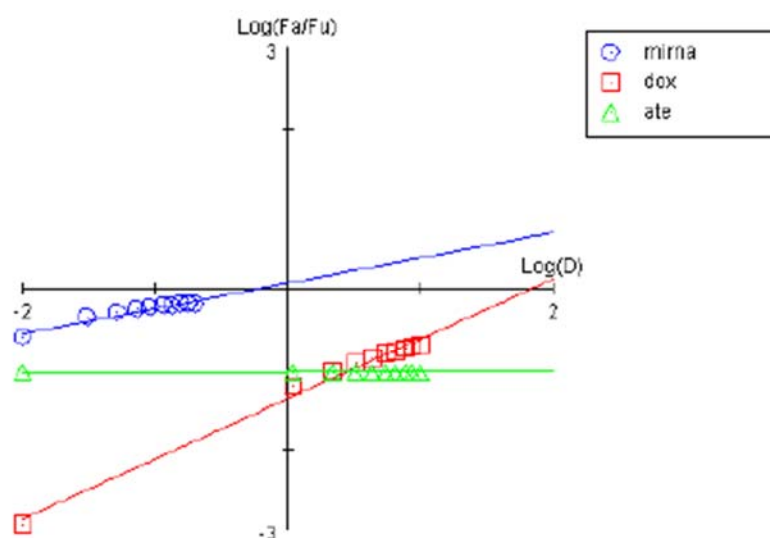
10 data points entered.

Data for Non-Constant Combo: mda (mirna+dox+ate)

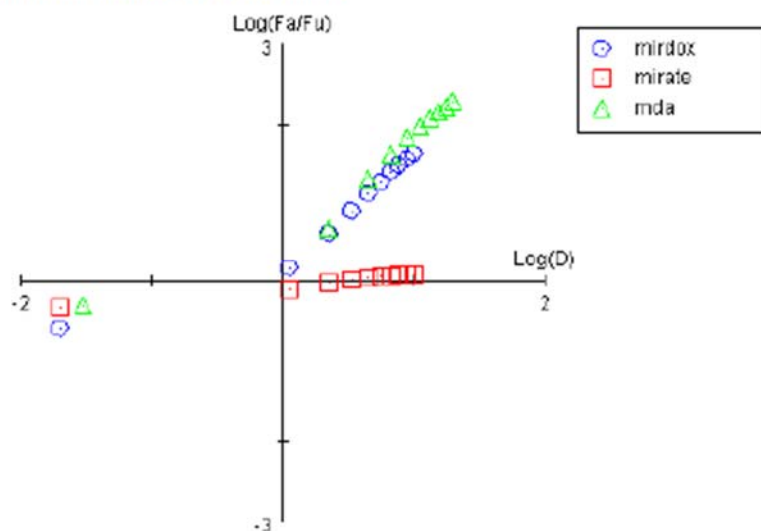
Dose mirna	Dose dox	Dose ate	Effect
0.01	0.01	0.01	0.32890
0.0311	1.12	1.12	0.83052
0.0522	2.23	2.23	0.95271
0.0733	3.34	3.34	0.97687
0.0944	4.45	4.45	0.98529
0.1156	5.56	5.56	0.98933
0.1367	6.67	6.67	0.99164
0.1578	7.78	7.78	0.99312
0.1789	8.89	8.89	0.99414
0.2	10.0	10.0	0.99488

10 data points entered.

Median-Effect Plot for Drugs



Median-Effect Plot for Drug Combos



CI Data for Non-Constant Combo: mirdox (mima+dox)

Dose mirna	Dose dox	Effect	CI
0.01	0.01	0.2064	1.37989
0.0311	1.12	0.5982	0.02627
0.0522	2.23	0.7995	0.00655
0.0733	3.34	0.8892	0.00335
0.0944	4.45	0.9291	0.00224
0.1156	5.56	0.9493	0.00172
0.1367	6.67	0.9609	0.00143
0.1578	7.78	0.9683	0.00125
0.1789	8.89	0.9733	0.00112
0.2	10.0	0.9769	0.00104

CI Data for Non-Constant Combo: mirate (mirna+ate)

Dose mirna	Dose ate	Effect	CI
0.01	0.01	0.32318	0.19766
0.0311	1.12	0.44847	0.11207
0.0522	2.23	0.49304	0.10613
0.0733	3.34	0.51610	0.11095
0.0944	4.45	0.53018	0.11930
0.1156	5.56	0.53967	0.12933
0.1367	6.67	0.54648	0.14007
0.1578	7.78	0.55162	0.15131
0.1789	8.89	0.55563	0.16287
0.2	10.0	0.55885	0.17465

CI Data for Non-Constant Combo: mda (mirna+dox+ate)

Dose mirna	Dose dox	Dose ate	Effect	CI
0.01	0.01	0.01	0.32890	0.18226
0.0311	1.12	1.12	0.83052	0.00241
0.0522	2.23	2.23	0.95271	6.27E-4
0.0733	3.34	3.34	0.97687	3.47E-4
0.0944	4.45	4.45	0.98529	2.49E-4
0.1156	5.56	5.56	0.98933	2.02E-4
0.1367	6.67	6.67	0.99164	1.74E-4
0.1578	7.78	7.78	0.99312	1.56E-4
0.1789	8.89	8.89	0.99414	1.44E-4
0.2	10.0	10.0	0.99488	1.35E-4

Combination Index Plot

