



MIMIVAX

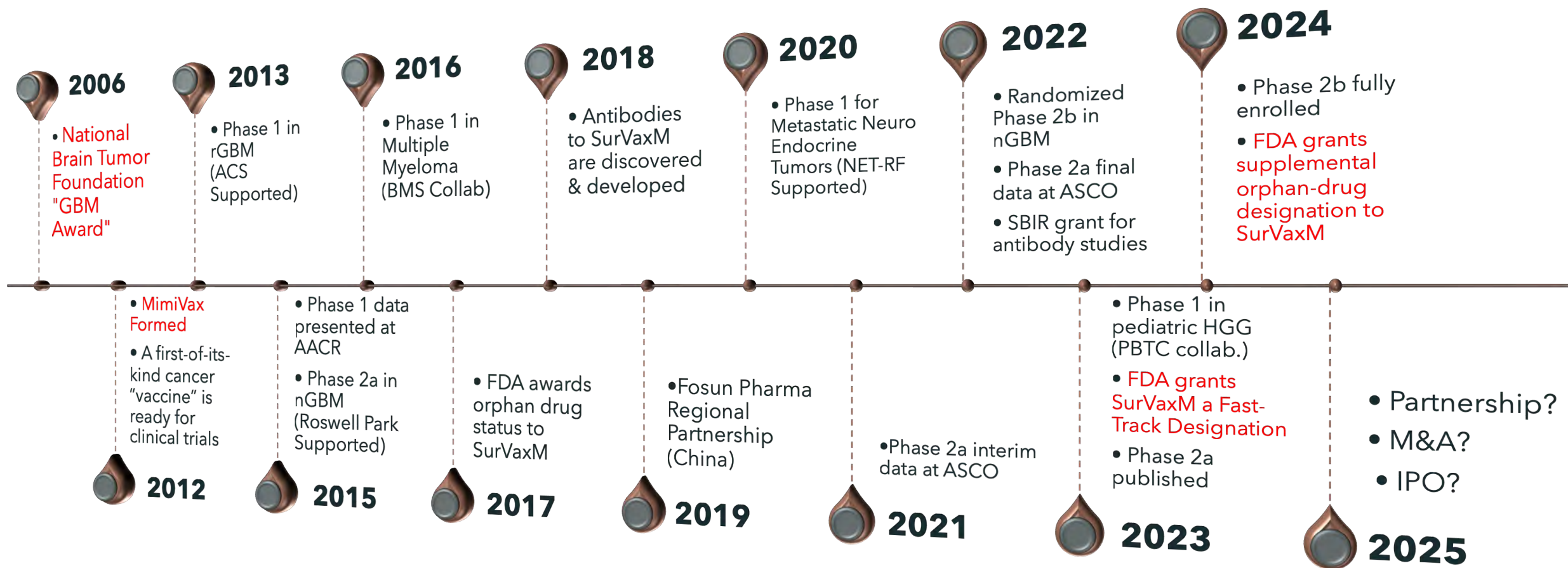
SurVaxM Update

Mike Ciesielski, PhD CEO,
MimiVax, Inc.

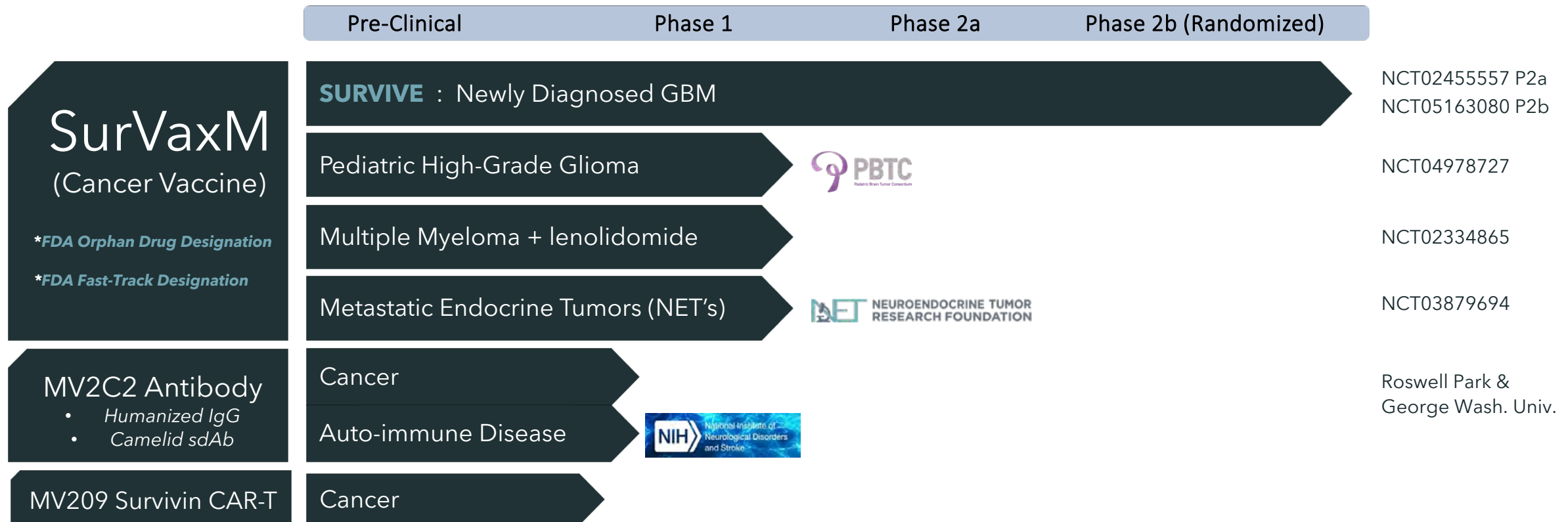
mciesielski@mimivax.com

www.mimivax.com

MimiVax History



MimiVax: Pipeline



Survivin as a target

- Survivin is:

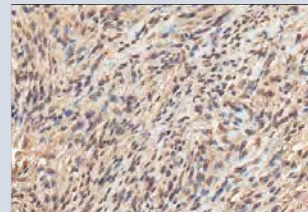
An over-expressed **Pan-Cancer** target

An Onco-fetal protein, typically turned on during fetal development

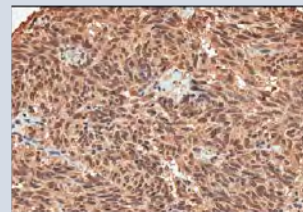
Rarely expressed in adult tissues

7 distinct protein isoforms

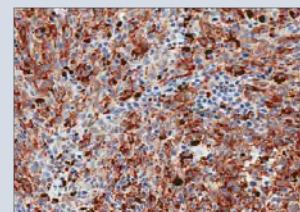
Cytoplasmic, Nuclear, Mitochondrial & Cell-Surface expression patterns



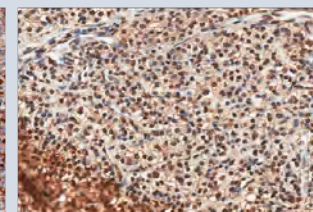
Glioblastoma



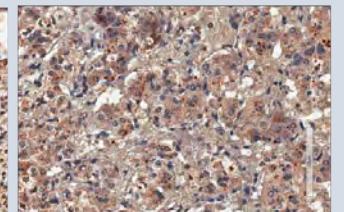
Adenocarcinoma



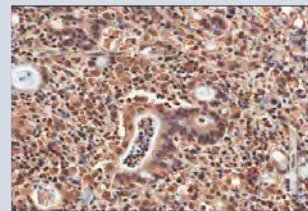
Melanoma



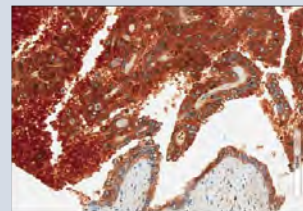
Squamous Cell



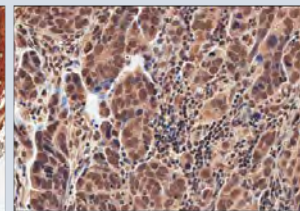
Pheochromocytoma



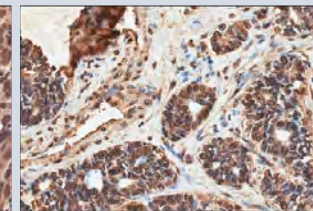
Endometrioid



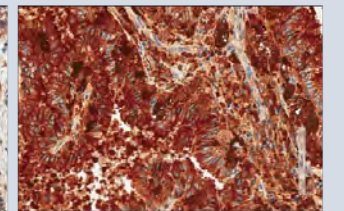
Renal Chromophobe



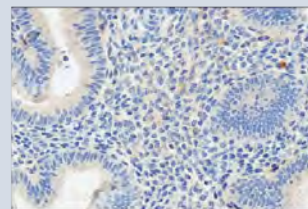
Hepatocellular



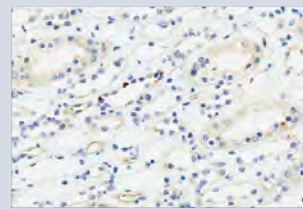
Atypical Carcinoid



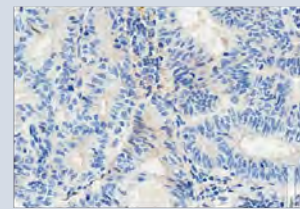
Renal Cell



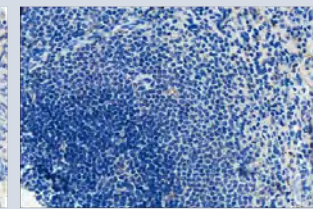
Normal Colon



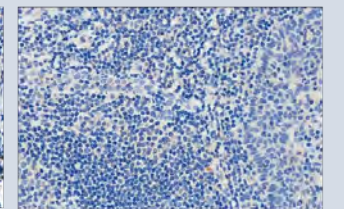
Normal Kidney



Normal Ovary



Normal Spleen



Normal Tonsil

SurVaxM Vaccine

SurVaxM is:

An off-the-shelf immunotherapeutic

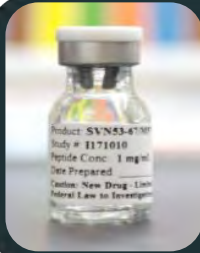
Targeted to a key structural epitope of survivin

Modified to enhance its immunogenicity

SurVaxM's MOA is:

Both IgG & T-Cell immune-mediated attack

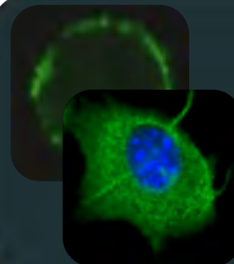
Potential for biological interference by IgG



- 15 AA Structurally-Altered Synthetic Long Peptide (SLP)
- Conjugated to highly immunogenic Keyhole Limpet Hemocyanin (KLH)
- Adjuvanted with Montanide & Local GM-CSF (sargramostim)

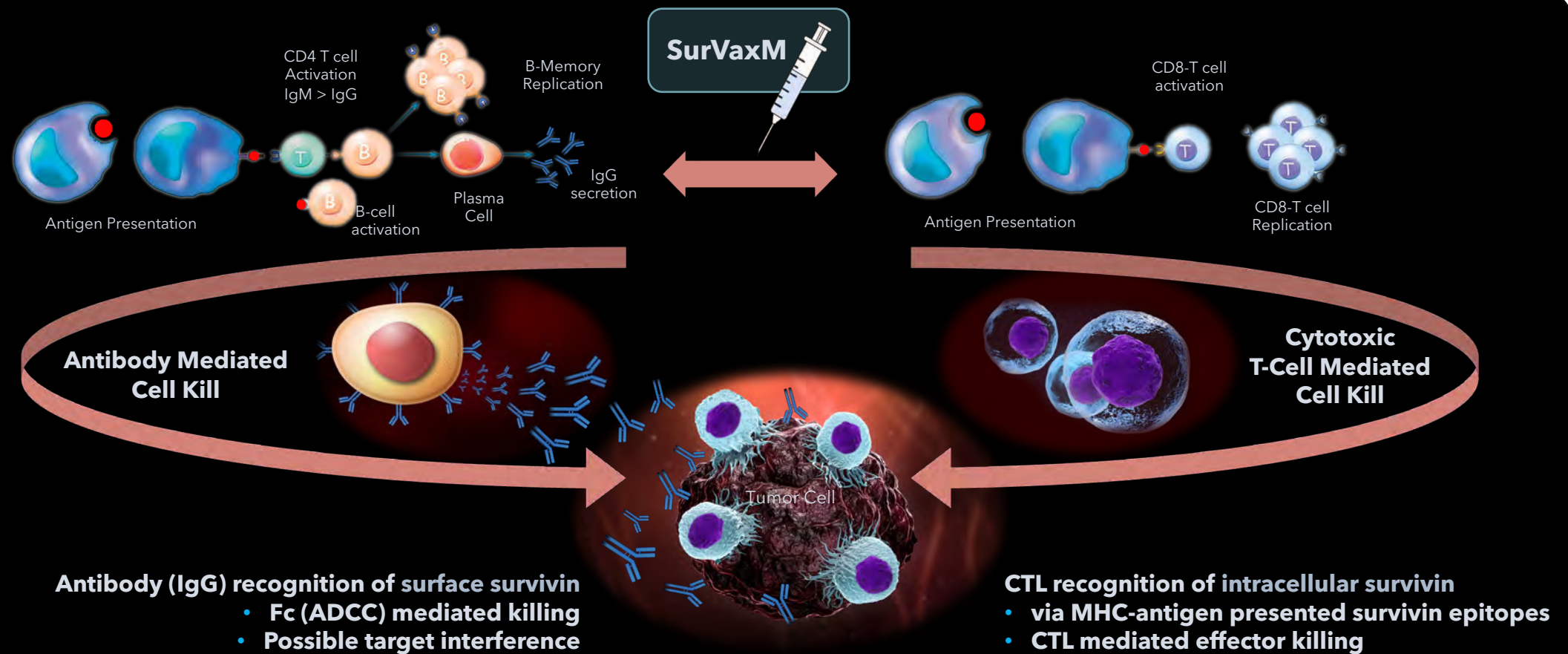


- Dosage: 500µg SurVaxM in Montanide ISA51 VG + 100µg GM-CSF
- Delivered as a Subcutaneous Injection
- 4 initial biweekly doses (q2week x 4)
- Ongoing maintenance dosage once every 2 months (q2month)



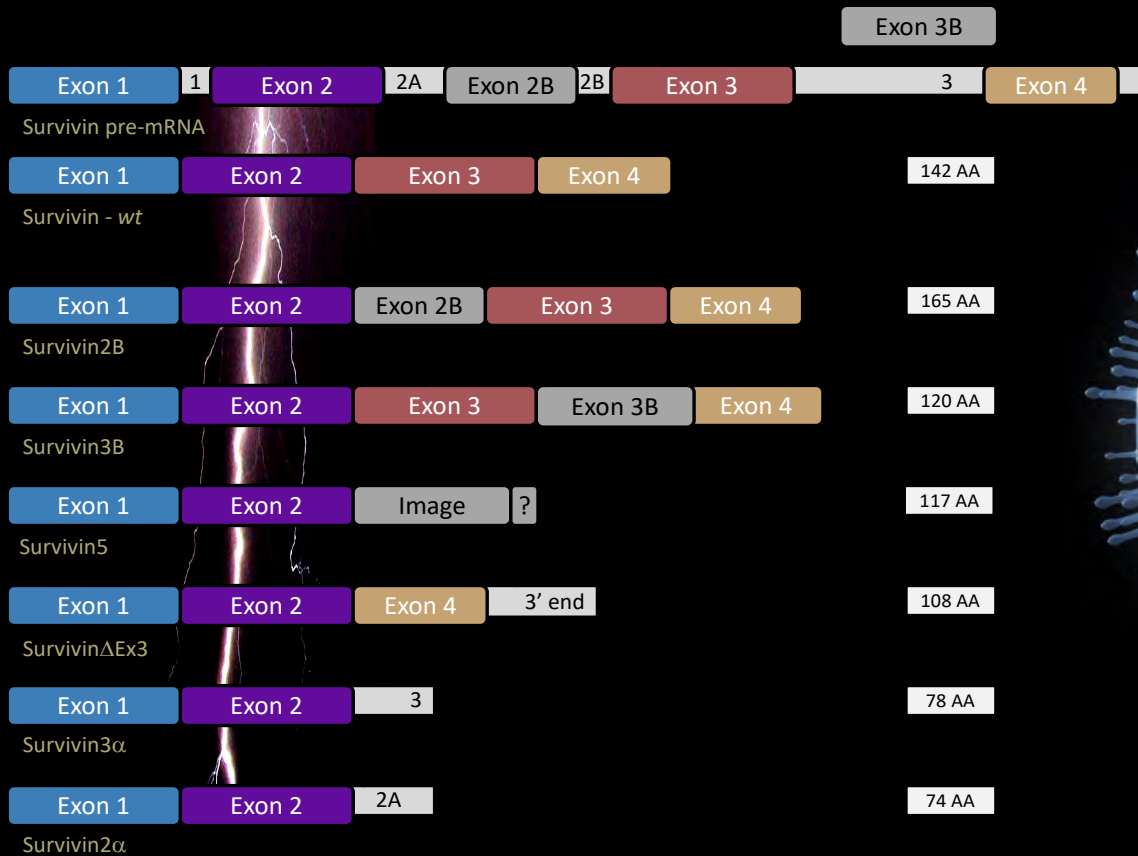
- Produces high affinity antibodies (IgG) that target cell-surface survivin
- CD4⁺ & CD8⁺ T-Cells target intra-cellular survivin via MHC-associated epitope presentation

Immune Response

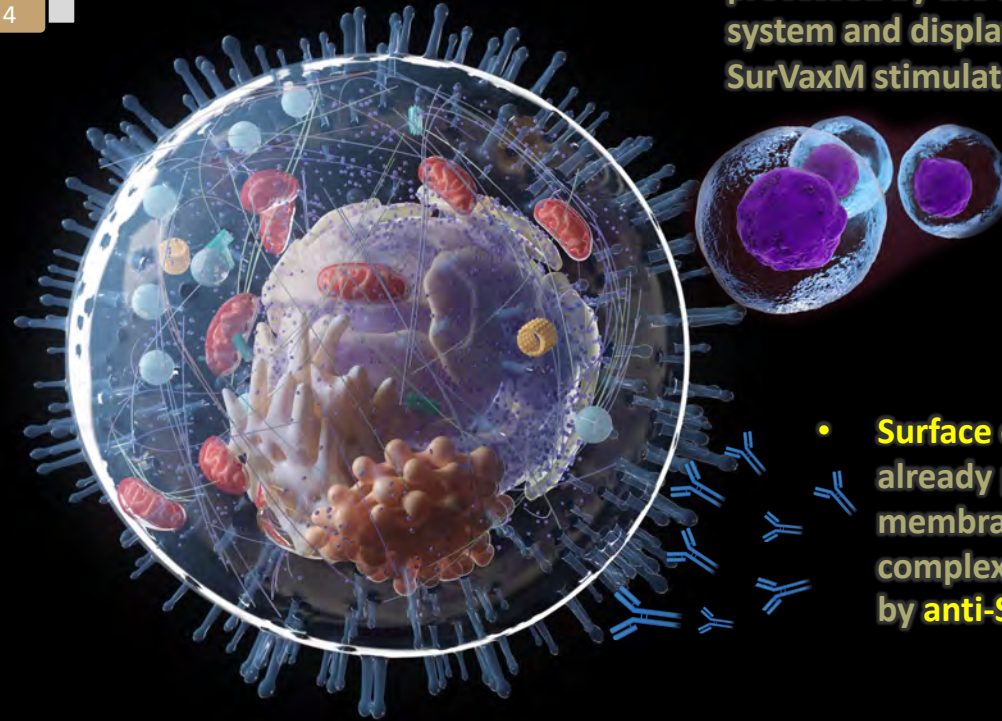


SurVaxM targets a conserved region of survivin present in several survivin-family isoforms

- Survivin has several isoforms, with different functions & cellular localization.



- Nuclear & Cytoplasmic Survivin** is processed by the antigen presentation system and displayed via MHC for SurVaxM stimulated **T cells to engage**



- Surface expressed Survivin** is already present at the plasma membrane in a protein complex directly recognizable by **anti-SurVaxM antibodies**

Clinical Data

Phase 2a in newly diagnosed GBM
2024 Update

Survival Data – Measured from Diagnosis





SurVaxM: Phase 2a Study of SurVaxM in adult nGBM

(NCT02455557)

PHASE 2a Single Arm DESIGN:

NEWLY DIAGNOSED GLIOBLASTOMA (*n*=63)

Gross total resection ($\leq 1\text{cm}^3$)
& completed initial Standard of Care therapy

Enrolled at:



SurVaxM (Single Arm)

SurVaxM in emulsion with Montanide
Sargramostim (local injection)

Combined with Standard TMZ

- Dosing q2w x 4 doses and then q2m until tumor progression or unacceptable toxicity occurs.

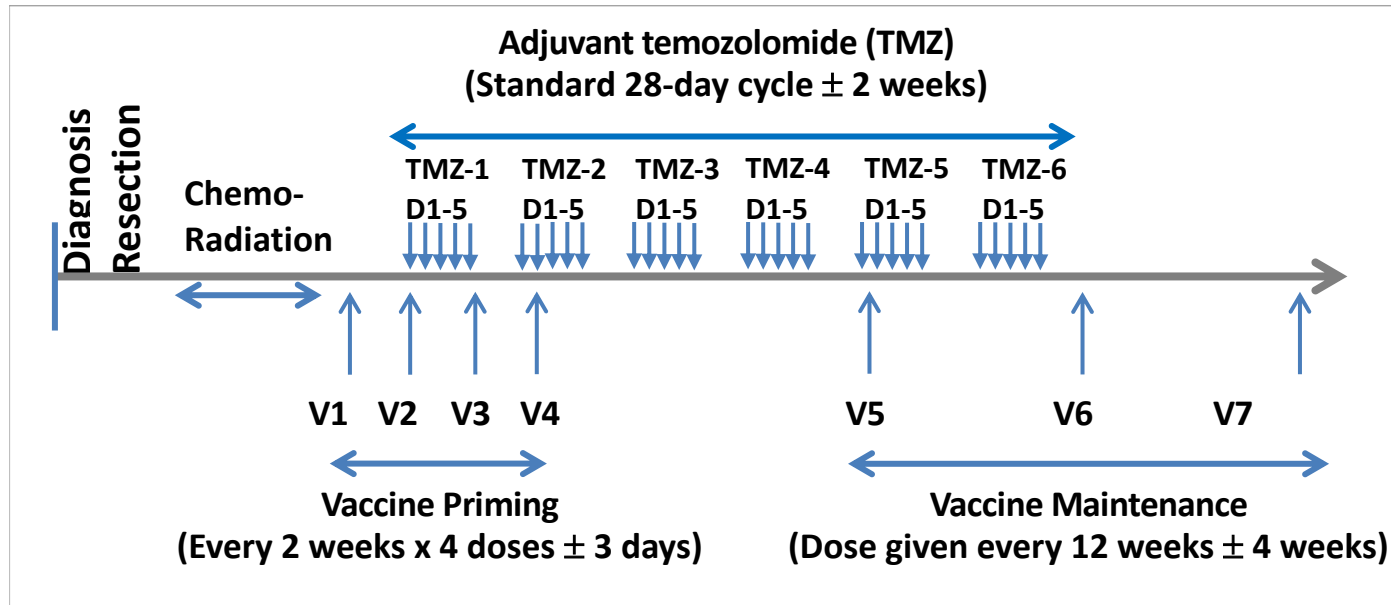
ENDPOINTS:

- 1° Progression Free Survival (+)
- 2° Overall Survival (+)
- 3° Immune Response & Biomarker Analysis (DNA/RNA) (+)

- Enrolled: 2015-2020
- Published: JCO 2023
- *Ongoing Updates...*



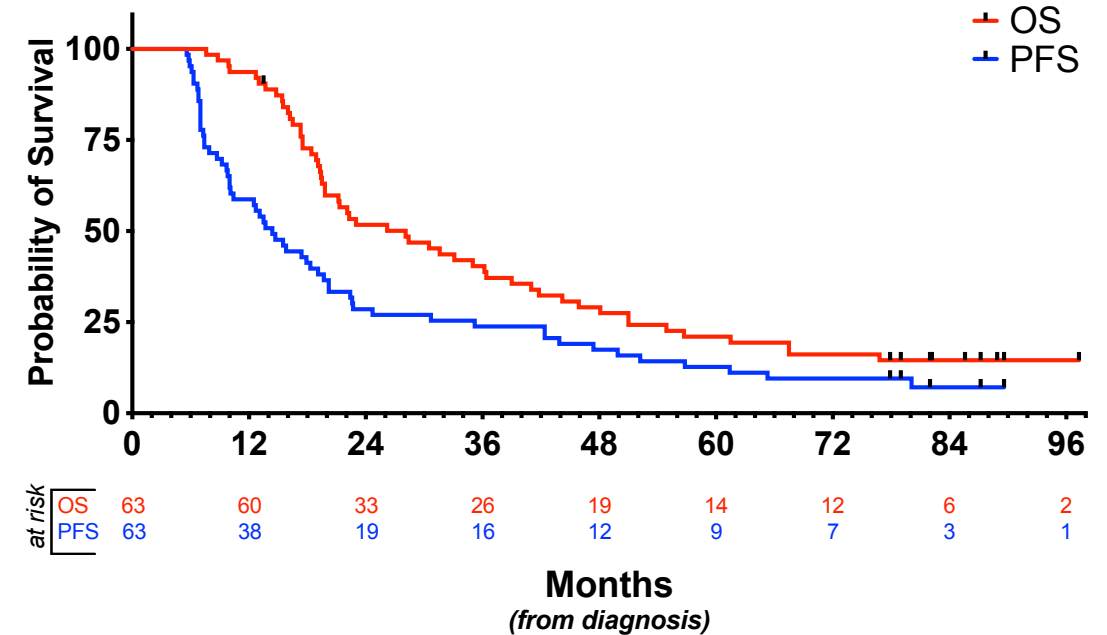
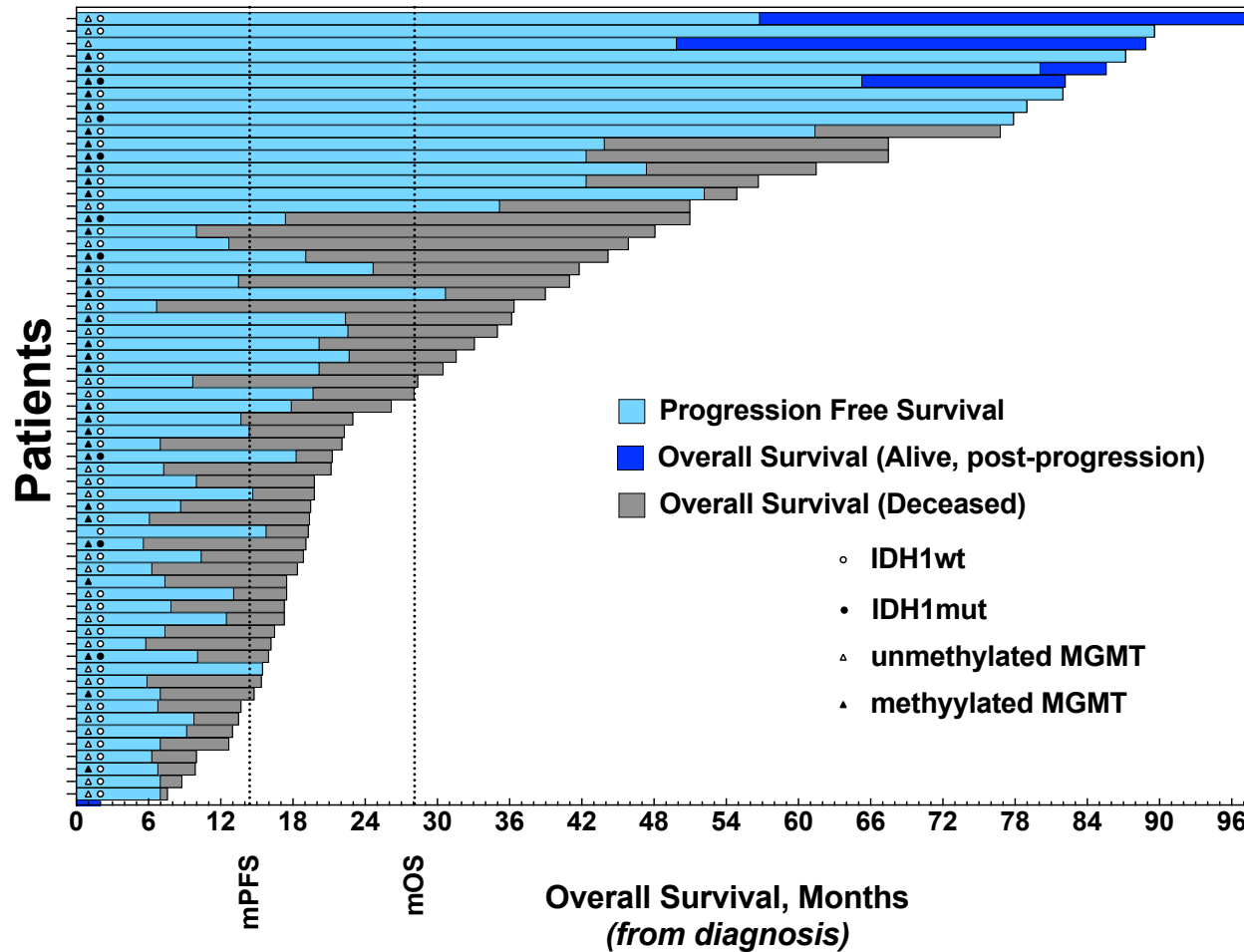
Phase 2a Study of SurVaxM in nGBM: Schedule & Demographics



| Total patients (n = 63) | | |
|-------------------------|--------------|------------|
| Gender | Male | 38 (60%) |
| | Female | 25 (40%) |
| Age | Mean | 56.5 |
| | Median | 60 |
| | Range | 20-82 |
| KPS score | Median | 90 |
| | Range | 70-100 |
| MGMT Status | Unmethylated | 29 (46%) |
| | Methylated | 33 (52%) |
| | Unknown | 1 |
| IDH status | wt | 53 (84%) |
| | IDH1-R32h | 8 (13%) |
| | Unknown | 2 |
| % SVN (IHC) | 1-4% | 2 (3.2%) |
| | 5-9% | 15 (23.8%) |
| | 10-19% | 35 (55.6%) |
| | \geq 20% | 12 (19.0%) |

Phase 2a Study of SurVaxM in nGBM (2024)

(All patients, measured from diagnosis, N=63)



| | |
|---------------------------|---|
| Overall Survival | 28.1 mos. from Diagnosis (expected is ~15-18 mos.) |
| Progression Free Survival | 14.4 mos. from Diagnosis (expected is ~4-7 mos.) |

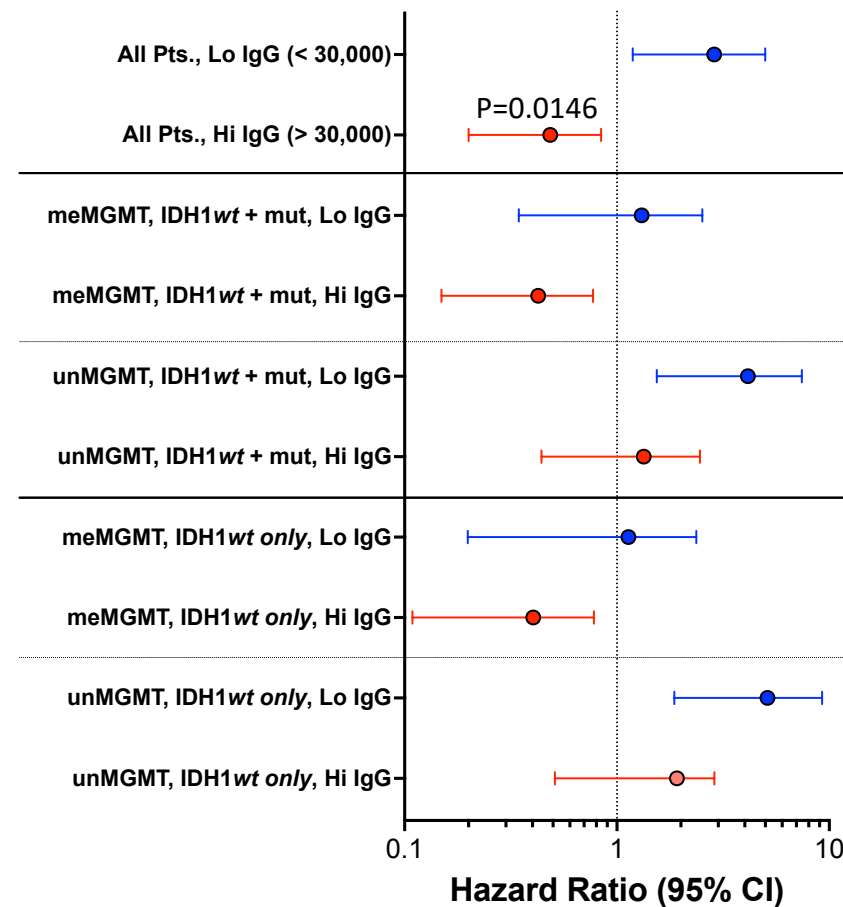
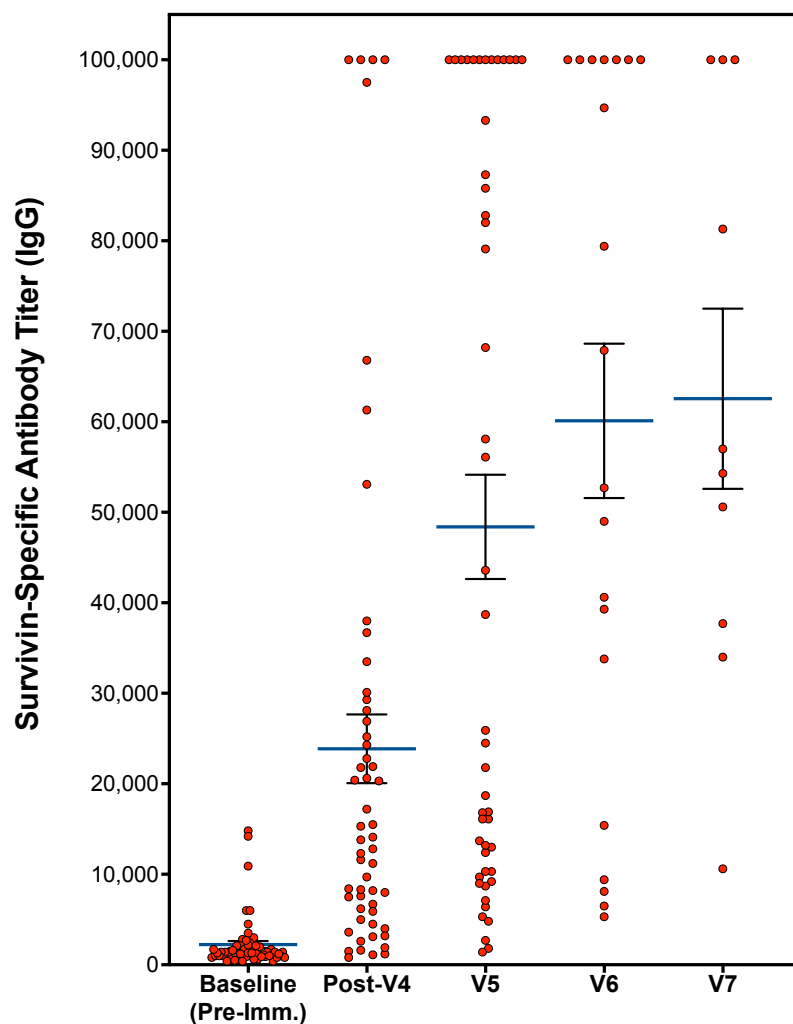
Phase 2a Study of SurVaxM in nGBM: Safety

| Preferred term | Grade 1 | Grade 2 | Grade 3 | Grade 4 |
|---------------------------|---------------|------------|------------|---------|
| Alopecia | 1/1 (1.6%) | | | |
| Amnesia | 2/2 (3.1%) | | | |
| Arthralgia | 3/3 (4.7%) | | | |
| Asthenia | | 1/1 (1.6%) | | |
| Back Pain | 1/1 (1.6%) | | | |
| Chills | 1/1 (1.6%) | | | |
| Confusion | | | 1/1 (1.6%) | |
| Decreased appetite | 1/1 (1.6%) | 1/1 (1.6%) | | |
| Fatigue | 12/12 (18.8%) | 1/1 (1.6%) | | |
| Hyperhidrosis | 1/1 (1.6%) | | | |
| Hypersensitivity | | | | |
| Hypertension - aggravated | | 1/1 (1.6%) | | |
| Influenza-like illness | 7/3 (4.7%) | | | |
| Injection site haematoma | 5/4 (6.3%) | | | |
| Injection site induration | 5/3 (4.7%) | | | |
| Injection site pain | 12/9 (14%) | | | |
| Injection site pruritus | 2/2 (3.1%) | | | |
| Injection site reaction | 37/24 (37.5%) | 3/3 (4.7%) | | |
| Injection site swelling | 2/2 (3.1%) | | | |

| Preferred term | Grade 1 | Grade 2 | Grade 3 | Grade 4 |
|----------------------------|------------|------------|------------|------------|
| Lymphopenia | 2/2 (3.1%) | 6/6 (9.4%) | 1/1 (1.6%) | 1/1 (1.6%) |
| Malaise | 2/2 (3.1%) | | | |
| Myalgia | 4/4 (6.3%) | 1/1 (1.6%) | | |
| Nausea | 1/1 (1.6%) | | | |
| Neutrophil count decreased | 2/2 (3.1%) | 2/2 (3.1%) | | 1/1 (1.6%) |
| Panniculitis | | 2/2 (3.1%) | | |
| Paresthesia | 3/3 (4.7%) | | | |
| Platelet count decreased | 2/2 (3.1%) | | | |
| Pruritus | 2/2 (3.1%) | 1/1 (1.6%) | | |
| Pyrexia | 2/2 (3.1%) | | | |
| Rash | 2/2 (3.1%) | 1/1 (1.6%) | 1/1 (1.6%) | |
| Rash maculo-papular | | | 1/1 (1.6%) | |
| Skin hypertrophy | 1/1 (1.6%) | | | |
| Subcutaneous nodule | 3/3 (4.7%) | | | |
| Transaminases increased | | 1/1 (1.6%) | | |
| Urticaria | 1/1 (1.6%) | 1/1 (1.6%) | | |
| Leukopenia | 4/4 (6.3%) | | | |

***AE's are inclusive of those attributable to temozolomide

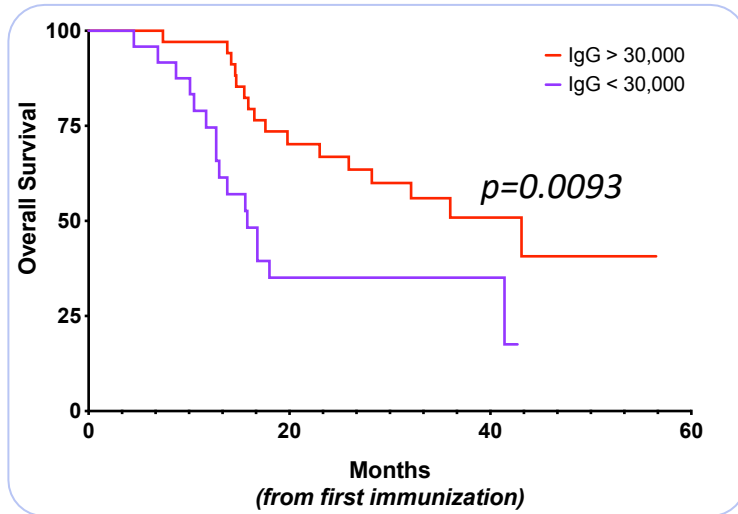
Phase 2a Study of SurVaxM in nGBM: IgG Response Correlates with OS



- Significantly higher OS associated with high titer IgG responses
- Stratification by IDH1 and MGMT all trend to better OS with higher titer IgG

Biomarker Response from Phase 2a Study

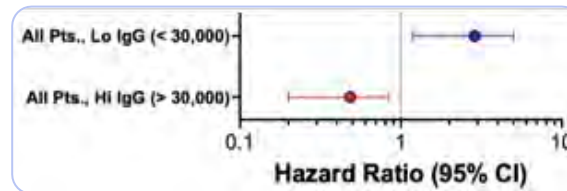
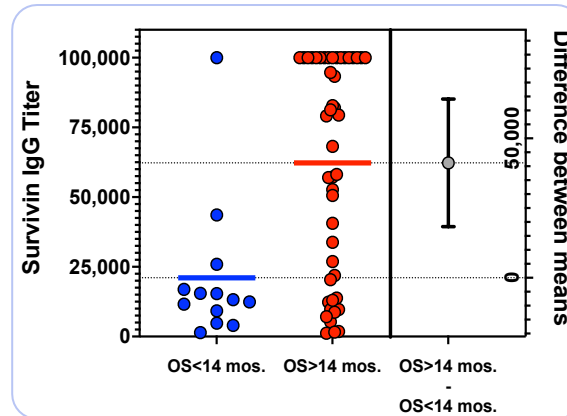
↑ Antibody (IgG) Response = ↑ OS & PFS ($P=0.0146$)



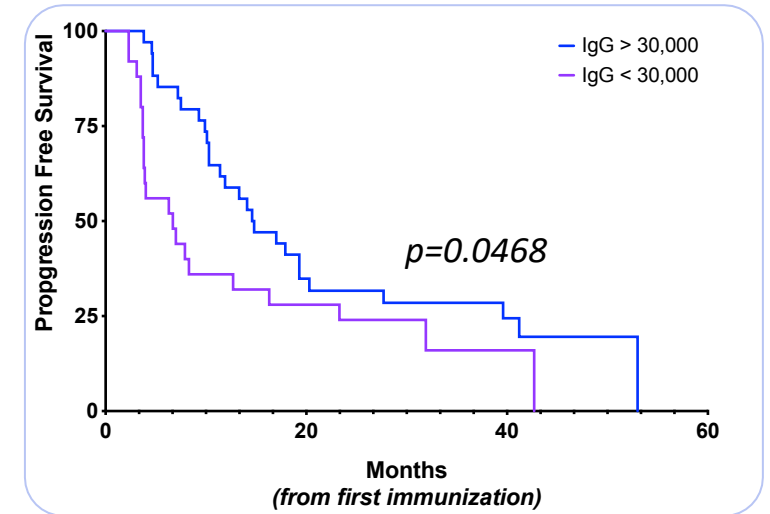
SurVaxM mOS

IgG > 30,000 = 43.1 mos.

IgG < 30,000 = 15.8 mos.



$P=0.0146$ for patients with IgG responses > 30,000 titer (HR, 0.41; 95% CI, 0.20-0.84)



SurVaxM mPFS

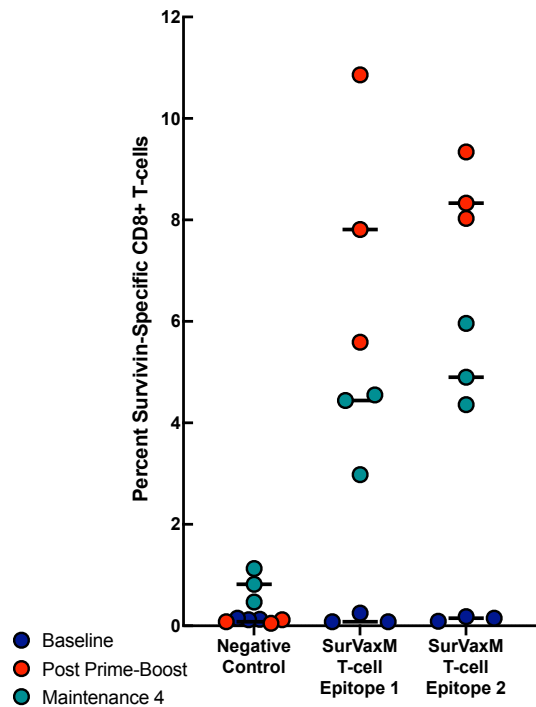
IgG > 30,000 = 14.7 mos.

IgG < 30,000 = 6.7 mos.

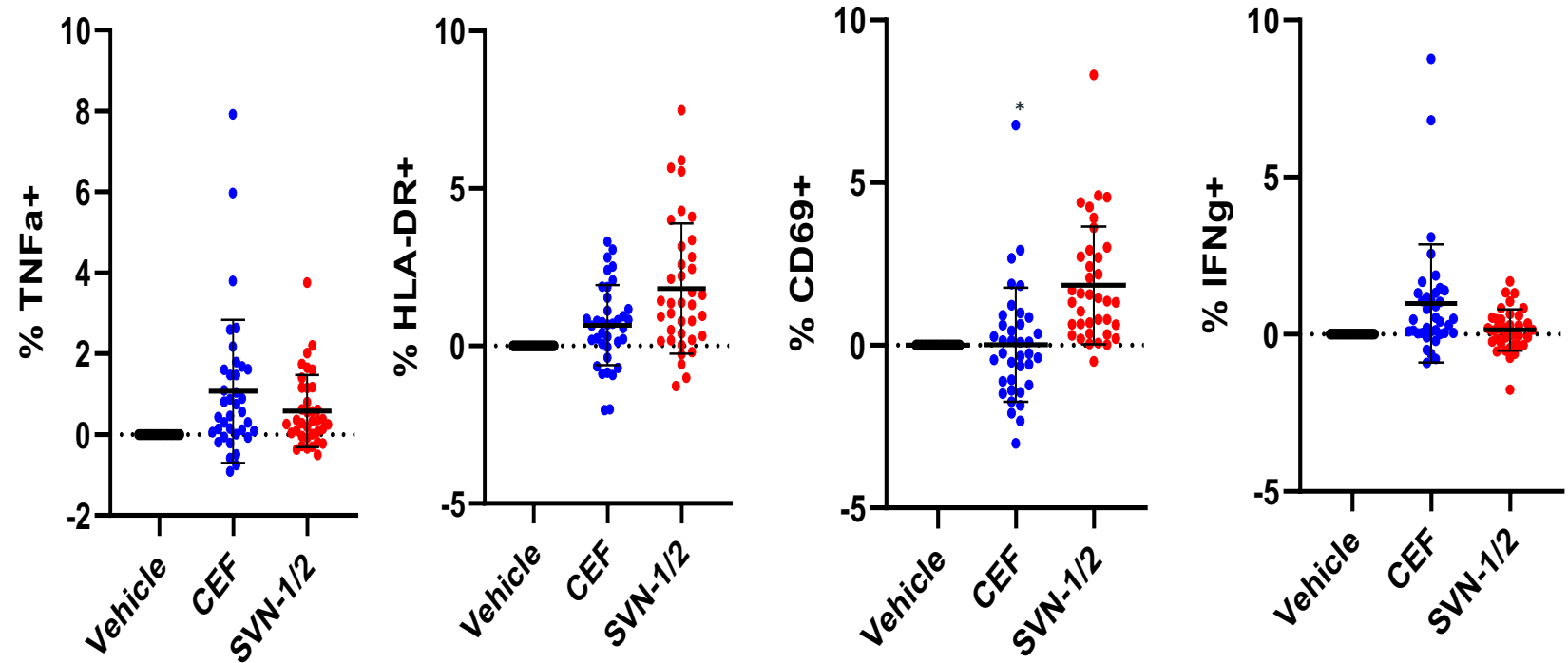
76% of patients had IgG > 30,000

Phase 2a Study of SurVaxM in nGBM: T-Cell Response

CD8+ T cell responses
(MHC-I Dextramers)



CD8+ T Cell responses
(to Survivin peptides)



SURVIVE

Phase 2b Study of SurVaxM in nGBM (SURVIVE)

Prospective Randomized Placebo-Controlled Trial of SurVaxM for Newly Diagnosed Glioblastoma (NCT0516308)

PHASE 2b RCT DESIGN:

NEWLY DIAGNOSED GLIOBLASTOMA (*n*=270)

Gross total resection ($\leq 1\text{cm}^3$)
& completed initial Standard of Care therapy
(Same as Phase 2a)

Stratified for MGMT methylation & IDH1 status

RANDOMIZED 3:2

SurVaxM (Arm A)

SurVaxM in emulsion with Montanide
Sargramostim (local injection)
Standard-of-care TMZ

Placebo (Arm B)

Saline in emulsion with Montanide
Saline (local injection)
Standard-of-care TMZ

ENDPOINTS:

- 1^o Overall Survival:
 - OS12 (surrogate)
 - mOS (confirmatory)
- 2^o Progression Free Survival:
 - mPFS
 - 1st per Central Imaging (RANO)
 - 2nd per PI
- 3^o Immune Response & Biomarker Analysis (DNA/RNA)

- Dosing q2w x 4 doses and then q2m until tumor progression or unacceptable toxicity occurs.

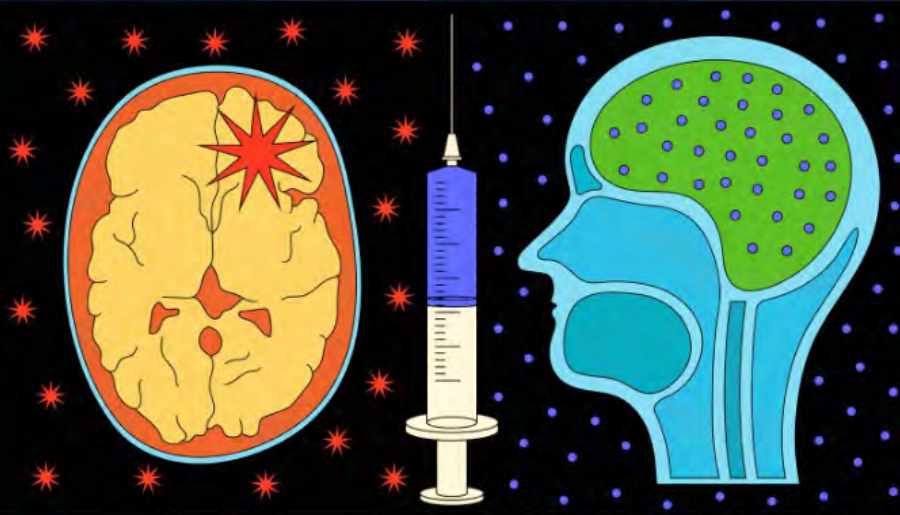


Recently Featured in National Media

NEWS WATCH NOW

Experimental vaccine shows promise in delaying the return of aggressive brain tumor

The vaccine, called SurVaxM, was shown to nearly double the survival time in a trial of 63 patients. Researchers now hope to confirm the findings in a larger trial.



— An experimental brain tumor vaccine targets a protein found in tumors called survivin that's thought to play a role in the survival of cancer cells. Allie Sullberg for NBC News

f t e | SAVE

June 12, 2023, 5:00 AM EDT

By Berkeley Lovelace Jr.





BRAIN CANCER VACCINE HOPE



LIVE ON GMA
YOUNG MOM FINDS HOPE IN BRAIN CANCER BATTLE
KATY SANCHEZ DEFYING GLIOBLASTOMA PROGNOSIS THROUGH CLINICAL TRIAL



PROMISING SIGNS FROM EXPERIMENTAL CANCER VACCINE



Daily Health
EXPERIMENTAL VACCINE SHOWS PROMISING RESULTS
SLOWING GROWTH OF DEADLY BRAIN CANCER

Independent US Market Analysis:

SurVaxM ranks #2 for a predicted \$254M US market share

| Parameters | Efficacy | Safety | Entry Order | Return on Asset | Weighted Score | Rank | Phase | Company | Mkt Cap | Share | Market Share Prediction |
|----------------------------|--------------|----------|-------------|-----------------|----------------|----------|----------------------|----------------|-----------------------|--------|-------------------------|
| Scores | | | | | | | | | | | |
| 1 st Line Drug | \$2.8B Total | | | | | | | | | | |
| DCVax | 9 | 9 | 10 | 7.5 | 8.9 | 1 | phase 3 (single arm) | Northwest Bio | \$648M | \$0.60 | \$271.1 |
| SurVaxM | 9 | 9 | 7 | 9 | 8.7 | 2 | phase 2b RCT | MimiVax | \$120M Private | | \$254.7 |
| INO-5401 | 8.5 | 8.5 | 7 | 8 | 8.2 | 3 | phase 1/2 | Inovio | \$116M | \$0.45 | \$152.5 |
| VAL-083 | 8 | 8 | 8 | 8 | 8.0 | 4 | phase 1 | Kintara | \$5.4M | \$3.23 | \$157 |
| Enzastaurin | 8 | 8 | 7 | 8 | 7.9 | 5 | phase 1/2 | Denovo | \$45M Private | | \$133.7 |
| Paxalisib | 7.5 | 8 | 8 | 8 | 7.8 | 6 | phase 2 (single arm) | Kazia | \$28M | \$1.23 | \$152.2 |
| Temferon | 7.5 | 8 | 6 | 8.5 | 7.6 | 7 | phase 1/2 | Genenta | \$108M | \$5.97 | \$123.4 |
| AV-GBM-1 | 7 | 8 | 6 | 8.5 | 7.4 | 8 | phase 2 (single arm) | Avita | \$610M | \$4.65 | \$103.2 |
| TV1-Brain-1 | 6 | 6 | 7 | 8.5 | 6.5 | 9 | phase 1 | TVAX | \$50M Private | | \$66.9 |
| LAM561 (2-OHOA) | 5 | 5 | 9 | 8 | 6.1 | 10 | phase 1/2 | Laminar | \$5M Private | | \$176.5 |
| ITI-1000 (pp65 DC Vaccine) | 5 | 5 | 7 | 7.5 | 5.7 | 11 | phase 1 | Immunomics | \$64M Private | | \$88.6 |

ght market research 2023

Glioblastoma Markets: SurVaxM could have a \$2.5B global market for GBM alone

| Market Capture Per Year | | | |
|-------------------------|----------|-----------|---------------|
| Glioblastoma | Cases/yr | 24% (Low) | 40% (Average) |
| USA | 13,000 | \$0.31 | \$0.52 |
| China | 70,000 | \$1.68 | \$2.80 |
| Japan | 2,700 | \$0.06 | \$0.11 |
| Korea | 627 | \$0.02 | \$0.03 |
| France | 3,200 | \$0.08 | \$0.13 |
| Germany | 4,700 | \$0.11 | \$0.19 |
| Italy | 4,300 | \$0.10 | \$0.17 |
| Spain | 2,600 | \$0.06 | \$0.10 |
| UK | 2,800 | \$0.07 | \$0.11 |
| | Billions | \$2.49 | \$4.16 |

- With low market penetrance (24%) SurVaxM is \$310.0M GBM market per year in the US alone
- COGS SurVaxM expected to be \$300/single dose base manufacture cost
- Estimated Pricing potentially \$100,000/8 dose regimen/yr.
- Comparatively a course of temozolomide chemotherapy currently used for all GBM patients (SOC) is \$120,000/yr. and represents a \$600M GBM market/yr.
- In contrast to cellular-based immune therapies (DC, CART) which average >\$200,000/dose and are close to \$1M per course/per patient. Cellular immunotherapy is very difficult for insurance reimbursement and market sustainability.

Sources:
1. Annual Report to the Nation on the Status of Cancer, 1999-2015 JNCI: Journal of the National Cancer Institute, 2019
2. Chin Med J (Engl). 2011 124(17):2578-83., Datamonitor Healthcare

3. Global, regional, and national burden of brain and other CNS cancer, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016
4. Brain Tumor Res Treat. 2017 5(1):16-23.

Glioblastoma

SurVaxM

Unique MOA

Data Driven

J Clin Oncol
2022 Dec 15;JCO2200996

**Antibody
Response**

**28.1 mos. mOS
14.4 mos. mPFS**

21% 5-YSR

**14 Long Term
(> 5 years)
GBM Survivors
from Phase 2a**

Glioblastoma

MIMIVA



MICHAEL
CIESIELSKI, PHD
CEO
& co-founder



ROBERT
FENSTERMAKER, MD
CMO
& co-founder



DANIELLE CASUCCI,
BA, BS, GN, CCRP, CCIP
VP, Clinical
Operations



SCOTT FRIEDMAN
Board Member
& co-founder
(Partner, Lippes Mathias, LLP)



JERRY JACOBS, JR
Board Chair
(CEO, Delaware North)



ROD THOMPSON, PHD
Acting Head, CMC
(BioPharm Process Assoc., LLC)



DAVE MALLIAROS, PHD
Acting Head, QA
(Syner-G BioPharma Group)



JENNY KEPPLER, MBA
Regulatory
(VP, Translational Medicine, TD2)



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WORKING TOGETHER WITH EXPERIENCED CRO'S

PROUDLY SUPPORTED BY PRIVATE INVESTORS, VENTURE PHILANTHROPY, DONATIONS & THE BUFFALO, NY COMMUNITY



MimiVax: Updates

MimiVax was granted Fast-Track Designation Approval by US FDA for SurVaxM on 9/22/2023



Our Reference: IND 27050

GRANT FAST TRACK DESIGNATION
September 22, 2023

MimiVax, LLC
Attention: Nick Martinez
Translational Drug Development (TD2)
13208 E. Shea Blvd. Suite 100
Scottsdale, AZ 85259

Dear Mr. Martinez:

Please refer to your Investigational New Drug Application (IND) submitted under section 505(i) of the Federal Food, Drug, and Cosmetic Act (FDCA) for "SVN53-67/M57-KLH Vaccine (SurVaxM), administered with Temozolomide."

We also refer to your request for fast track designation received August 11, 2023, submitted under section 506(b) of the FDCA. We have reviewed your request and have determined that SVN53-67/M57-KLH Vaccine (SurVaxM) in combination with standard of care for the treatment of patients with newly diagnosed glioblastoma multiforme (GBM) to improve overall survival meets the criteria for fast track designation. Therefore, we are granting your request for fast track designation. Please note that if the drug development program does not continue to meet the criteria for fast track designation, we may rescind the designation.

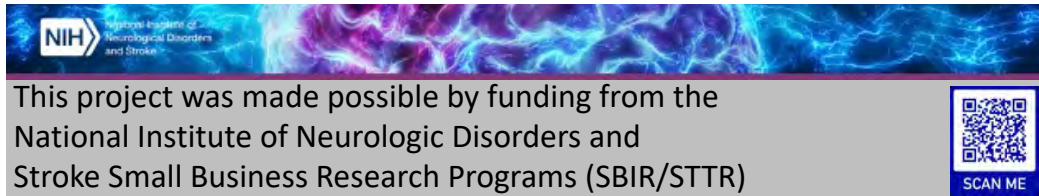
For further information regarding fast track drug development programs, please refer to the guidance for industry *Expedited Programs for Serious Conditions – Drugs and Biologics* at <http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM358301.pdf>.

Additional Data



MV2C2 Antibody Program

Myasthenia Gravis



Humanized MV2C2 Program

Murine MV2C2-IgG2b (prototype)

Humanized MV2C2-IgG1 (Lead candidate)

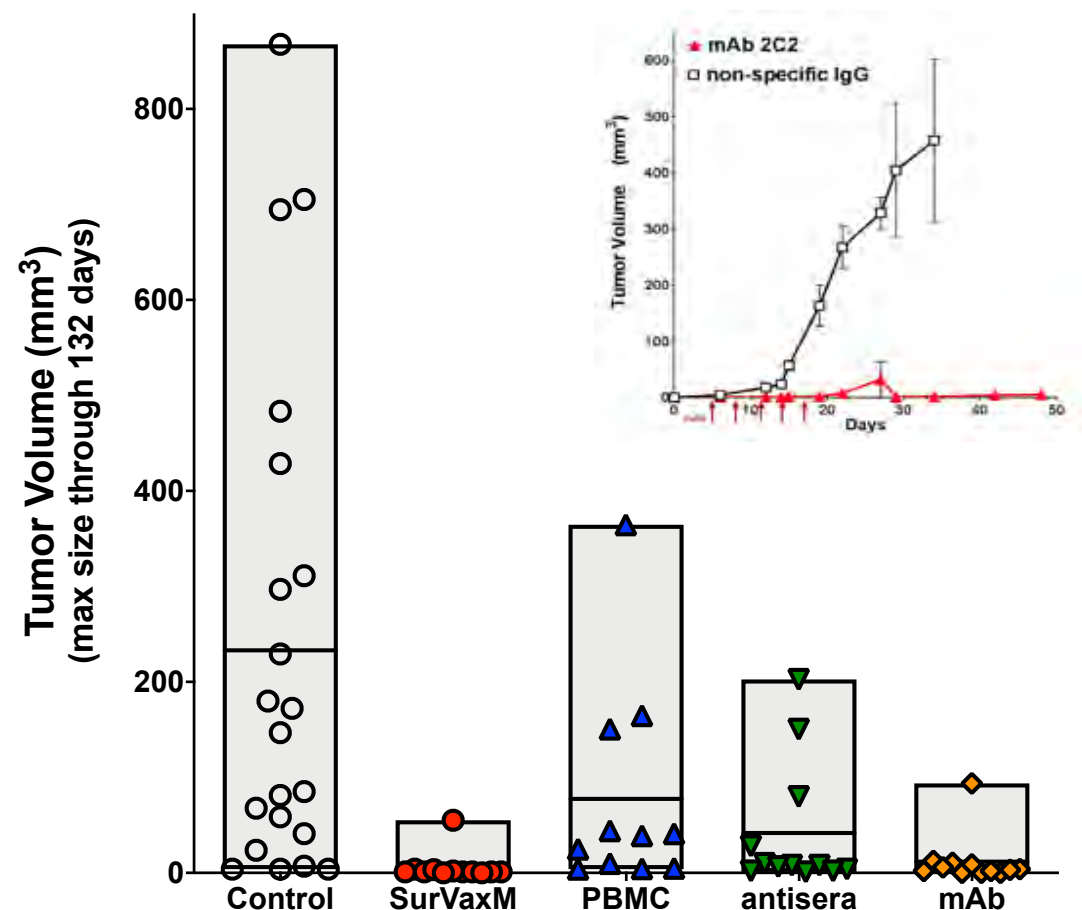
- Lead human antibody slated for Ph 2 SBIR application, IND enabling for auto-immune disease (Myasthenia Gravis)
- sdAb second generation survivin targeting binders/SurVaxM agents in oncology (tissue penetrating & ADC options)
- Seeking development and/or acquisition partners for antibody platform program



NIH-NINDS-SBIR Supported

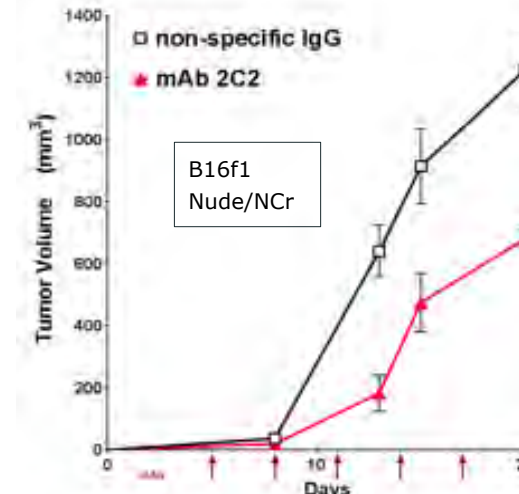
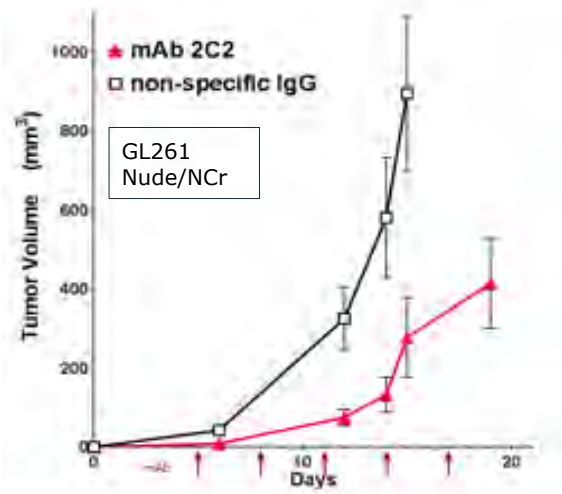
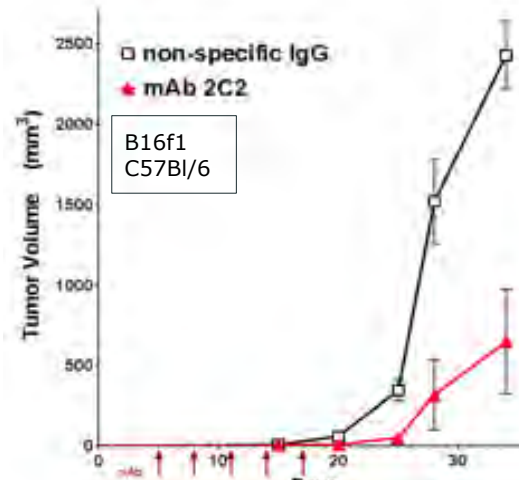
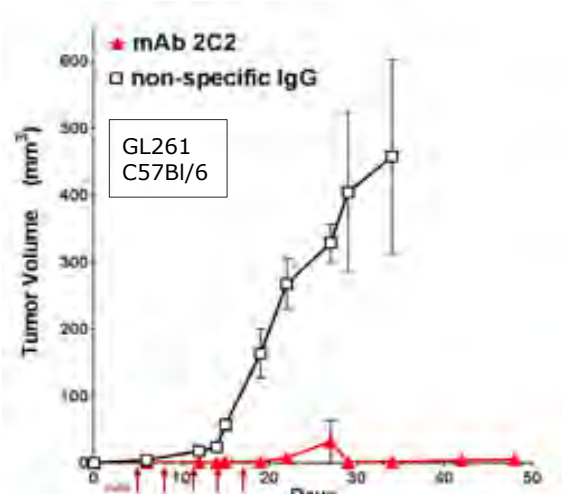
SurVaxM anti-tumor humoral and cellular response

- The anti-survivin antibody (**MV2C2**) used SurVaxM as the antigen to recapitulate what we see in patients for further study
- GL261 glioma cell model growing SQ in C57Bl/6 mice
- Adoptively transferred PBMC from SurVaxM immunized to naïve mice retains some anti-tumor activity
- Transferred SurVaxM antisera also retains some anti-tumor activity in naïve mice
- Purified murine mAb IgG exhibits potent anti-tumor activity by itself without any T cells
 - Survivin isoforms are present at the cell surface, accessible to antibody-mediated immune mechanisms

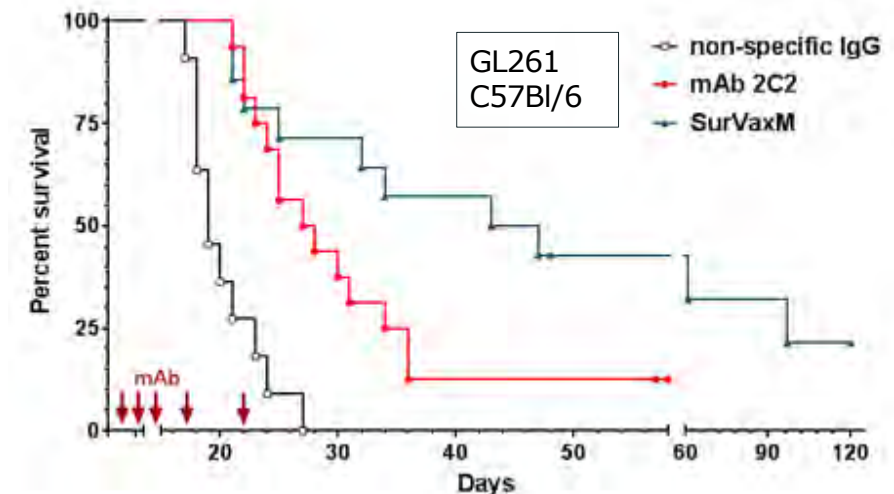


Anti-SurVaxM derived mAb IgG: ? H\$5\$

Pre-clinical studies: Melanoma & Glioma



- Cloned anti-SurVaxM antibodies control tumor growth in SQ models of glioma(GL261) & melanoma (B16)



- Also effective treating GL261 growing intracranially

Total Survivin Expression MG Thymus

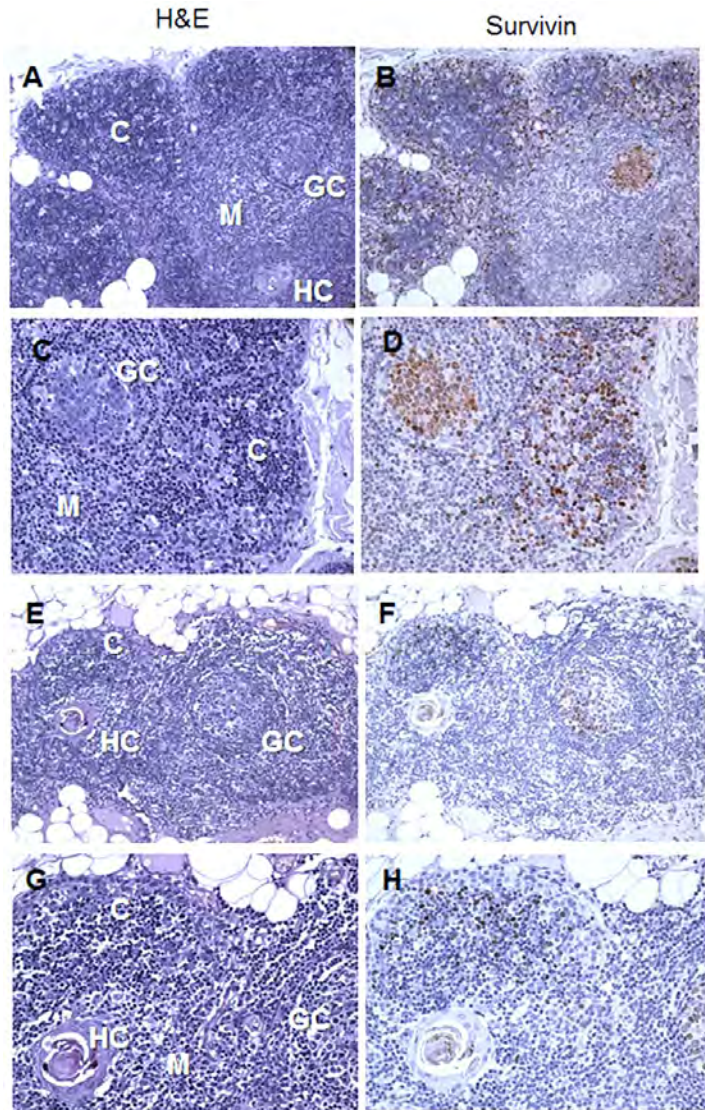


Figure 3. Survivin expression in the thymus. Representative images from an analysis of eleven thymuses from MG patients were analyzed for survivin expression (immunosuppression treated, n=7; immunosuppression naïve, n = 4).

A–D) MG thymus from a 24-year-old woman who had clinical symptoms for 2 years and an AChR antibody level of 19.3 nmol and had never received immunosuppression or prednisone showed a well developed cortex (C) and medulla (M), lymphofollicular hyperplasia with a germinal center (GC) close to Hassall's corpuscle (HC).

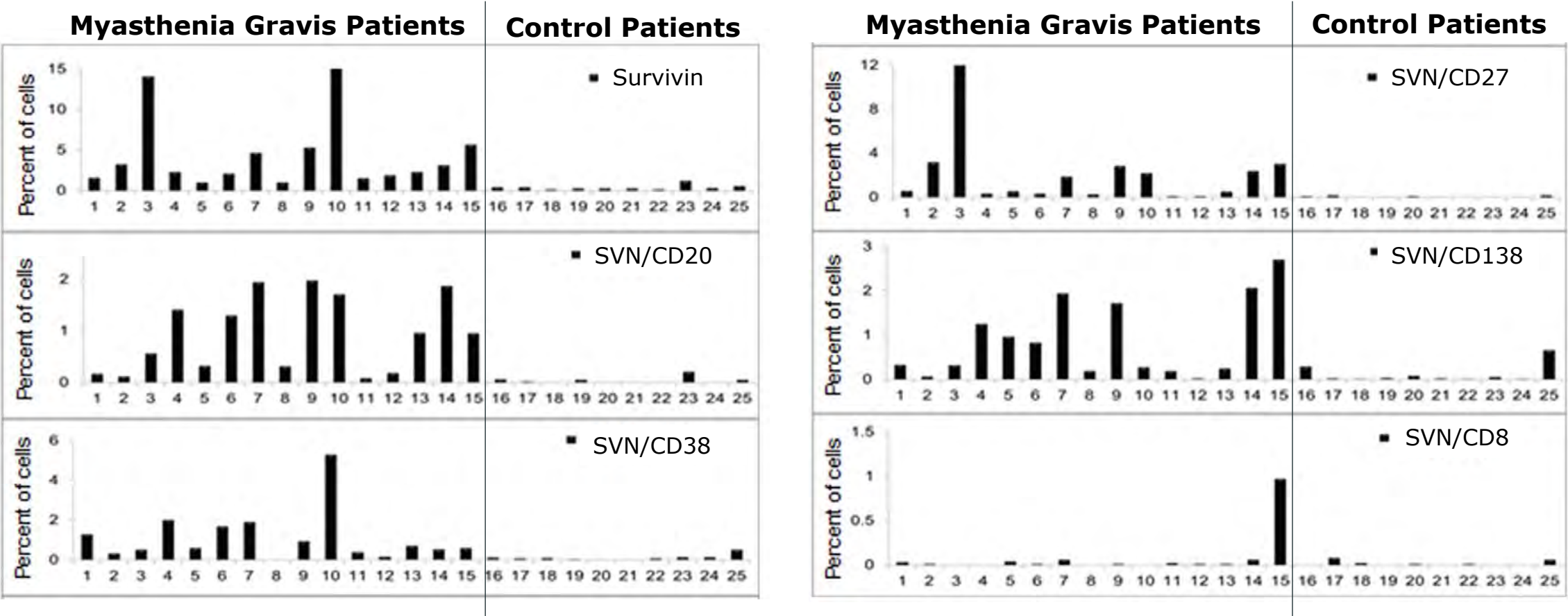
B,D) High number of survivin positive cells in the cortex (C), cortico-medullary junction and the GC.

E–H) EOMG thymus from a AChR antibody positive 21-year-old female with lymphofollicular hyperplasia after long-term immunosuppression showing cortical atrophy and a slightly regressive germinal center (GC) close to a Hassall's corpuscle (HC).

F,H) Low number of survivin positive lymphocytes in the remnant cortical area (C), and the germinal center (GC) (A,B,E,F,6100; C,D,G,H6200).

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Survivin expression of B-cells (plasma lineage) in myasthenia gravis patients



Survivin expression in myasthenia gravis patients (1–15) and control (16–25) PBMCs. FACS analysis of total survivin expression of PBMC stained with antibodies to indicated markers. Data reflect the percentage of total cells staining positive.

Significance: mAb 2C2 reduces severity of Myasthenia Gravis in animal models

Experimental Autoimmune Myasthenia Gravis (EAMG) preclinical mouse model

- After 14 days of every other day MV2C2 injection (20-100ug/i.p.)
- SVN(+) B-cells reduce numbers
- IgG2b levels decline
- Strength increases
- Overall disease score decreases

