Resources

- Resource tab includes
  - Speaker bios
  - Copy of the slide presentation
  - Exhibit Hall

Submit your questions throughout the program!
MMRF Research Initiatives

1. MMRF Myeloma Accelerator Challenge (MAC) Grants
   - Broad, multi-institutional research grants designed to advance clinical trial concepts in the areas of
     • High-risk newly diagnosed multiple myeloma (NDMM)
     • High-risk smoldering myeloma (SMM)
   - Each research network will be funded up to $10M over 3 years

2. MMRF Horizon Adaptive Platform Trials
   - Paired with MAC grants
   - Done in collaboration with 13 MMRC sites
   - Trials in relapsed/refractory myeloma, high-risk NDMM, high-risk SMM

For more information, visit themmrf.org

2023 Myeloma Accelerator Challenge Program Grant Recipients

Transforming Treatment of High-Risk Myeloma
Network includes Tisch Cancer Center at Mt Sinai, Albert Einstein Medical College, Hackensack University Medical Center, Stanford University Medical Center, UCSF, Washington University of Saint Louis

A Systems Biology Approach to High-Risk Myeloma
Network includes Erasmus Medical Center, Rotterdam; Amsterdam University Medical Centers; Julius Maximilian University of Wurzburg; University of Turin; University of Salamanca

Clinical and Multi-Omics Platforms to Define High-Risk Smoldering Myeloma
Network includes Emory University, Atrium Health Levine Cancer Institute, Icahn School of Medicine at Mt. Sinai, Mass General Hospital, Mayo Clinic, MSKC Institute, Dana-Farber Cancer Institute

Each network will receive $7M over 3 years for a total $21M investment by the MMRF, meant to foster collaboration and advance compelling hypotheses that are ready for rapid testing in clinical trials.
Speakers

Sergio A. Giralt, MD, FACP, FASTCT
Memorial Sloan Kettering Cancer Center
Weill Cornell Medical College
New York, New York

David H. Vesole, MD, PhD, FACP
MedStar Georgetown University Hospital
Georgetown University School of Medicine
Washington, DC
John Theurer Cancer Center,
Hackensack Meridian School of Medicine
Hackensack, New Jersey

Deciding on an Autologous Stem Cell Transplant

Sergio A. Giralt, MD, FACP
Memorial Sloan Kettering Cancer Center
New York, New York
What is an Autologous Stem Cell Transplantation and Why is it a Part of Treatment for Myeloma?

Types of Stem Cell Transplantation

**Transplant type**
- Autologous*
  - Your own cells
- Allogeneic
  - A donor’s cells (requires a match)

**Stem cell source**
- Autologous
  - Peripheral blood (99%)
- Allogeneic
  - Peripheral blood
  - Bone marrow
  - Cord Blood

**Transplant process**
- Autologous
  - Single
  - Tandem
- Allogeneic
  - Myeloablative
  - Reduced Intensity

*Most common
Current Treatment Paradigm for Newly Diagnosed Multiple Myeloma

Who is a Candidate for Autologous Stem Cell Transplantation?
Candidates for ASCT

- A patient’s eligibility for high-dose chemotherapy and transplant is based on overall health.
- A variety of factors such as comorbid conditions, fitness, and frailty influence whether you are eligible for ASCT.
- Guidelines for patient eligibility may vary between cancer centers.

What are the Pros and Cons Associated with Autologous Stem Cell Transplant?
Pros and Cons of Autologous Stem Cell Transplant

**Pros**
- Track record of effectiveness
- Time off intensive therapy
- Able to repeat the procedure
- Low dose maintenance post-transplant therapy extends disease control even further

**Cons**
- Toxicity/long-term side effects
- Confinement in hospital/clinic
- Time away from home and work

Should I Do My Transplant Early or Should I Delay My Transplant After First Relapse?
**Early Versus Delayed Transplant?**

**Q: Should I get a transplant after induction OR wait until relapse?**

**DETERMINATION phase 3 study**

<table>
<thead>
<tr>
<th>Newly diagnosed myeloma patients</th>
<th>365 patients</th>
<th>357 patients</th>
</tr>
</thead>
</table>

**EARLY-TRANSPLANT ARM**

- **Induction**
  - Revlimid + Velcade + dex (RVd)
- **Stem cell collection**
- **ASCT**
- **RVd**
- **R**

**LATE-TRANSPLANT ARM**

- **Induction**
  - Revlimid + Velcade + dex (RVd)
- **Transplant**
- **Consolidation**
  - RVd
- **Maintenance**
  - R

---

**Phase 3 Study of ASCT for Newly Diagnosed Multiple Myeloma: Survival Analysis**

**Progression-free survival (PFS)**

- **Early transplant: RVd + ASCT** (median PFS, 67.5 mos)
- **Continuous RVd induction** (median PFS, 46.2 mos)

**Transplant extended time to progression by 20 months**

- PFS for early transplant: approximately 5.5 years
- PFS for continuous induction: approximately 4 years

**Length of overall survival: no difference.**

## Phase 3 Study of ASCT for Newly Diagnosed Multiple Myeloma: Side Effects

<table>
<thead>
<tr>
<th>Side effect (%)</th>
<th>RVd alone (N=357)</th>
<th>RVd + ASCT (N=365)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>78.2</td>
<td>94.2</td>
</tr>
<tr>
<td>Low blood counts</td>
<td>60.5</td>
<td>89.9</td>
</tr>
<tr>
<td>Very low white cell count</td>
<td>42.6</td>
<td>86.3</td>
</tr>
<tr>
<td>Low platelet count</td>
<td>19.9</td>
<td>82.7</td>
</tr>
<tr>
<td>Low white cell count</td>
<td>19.6</td>
<td>39.7</td>
</tr>
<tr>
<td>Anemia</td>
<td>18.2</td>
<td>29.6</td>
</tr>
<tr>
<td>Lymphopenia</td>
<td>9.0</td>
<td>10.1</td>
</tr>
<tr>
<td>Infections with low WBC</td>
<td>4.2</td>
<td>9.0</td>
</tr>
<tr>
<td>Fever</td>
<td>2.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>5.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>3.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Nausea</td>
<td>0.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Mouth sores</td>
<td>0</td>
<td>5.2</td>
</tr>
<tr>
<td>Fatigue</td>
<td>2.8</td>
<td>6.0</td>
</tr>
<tr>
<td>Numbness, tingling nerve</td>
<td>5.6</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Severe side effects were more common with transplant.

---

## Early vs Delayed Transplant: Pros and Cons

### Pros

**Early ASCT**
- Deeper and more durable response
- Youngest/healthiest you are going to be
- Allows for fewer cycles of induction treatment

**Late ASCT**
- PFS may be shorter, but currently appears OS is the same
- Less side effects without high-dose chemotherapy
- Conserve quality of life in the early part of disease journey

### Cons

**Early ASCT**
- No proven impact on overall survival
- 20% of patients still relapse within 2 years
- More side effects including a small risk of serious life-threatening complications
- 3 months to full clinical recovery

**Late ASCT**
- Need more cycles of induction
- May need next treatment sooner, including (late) transplant
- Not all patients relapsing are able to undergo salvage ASCT
Deciding on an ASCT

**Summary**

- ASCT remains the standard of care for frontline therapy of myeloma.
- ASCT safety has been established and it induces long PFS.
- Decision of ASCT should be individualized in every patient and deserves a thorough discussion between the patient and provider.
- Serves as a platform for new therapies.

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Undergoing an Autologous Stem Cell Transplant

*David H. Vesole, MD, PhD, FACP*
Georgetown University School of Medicine
Washington, District of Columbia
John Theurer Cancer Center
Hackensack, New Jersey
What is Involved with Stem Cell Collection?

1. **Induction therapy**
   - ~3 to 6 cycles
   - Stem cell mobilization
     - Neupogen, Neulasta, Leukine, Cytoxan, Mozobil

2. **Collection of stem cells from the bloodstream**
   - -2 to -3 weeks*

3. **Freezing of stem cells**

4. **High-dose chemotherapy**
   - Melphalan
     - Alkeran, Evomela

5. **Thawing and infusion of stem cells**
   - Day 0

6. **Bone marrow recovery**
   - Days +1 to +100†

*The weeks leading up to the transplant; †The days after the transplant.
The Transplant Process

**Outpatient (Clinic) Setting**

**Benefits**
- Allows patients to spend nights in the comfort of their own home or on-campus housing
- The same health care team oversees both inpatient and outpatient programs

**Process**
- Daily visits to the infusion center
- Labs are drawn, infusions and IVs administered
- Patients are in a private treatment bay
- Typically spend 5–6 hours a day at the center
- Goal is to keep the patient from being hospitalized!

**Caution**
- Fever will require hospitalization; it is easy to admit a patient from the infusion center or home to the inpatient unit

**Inpatient (Hospital) Setting**

- Traditional way of administering high-dose chemotherapy with stem cell rescue
- Better option for some patients
- Hospitals typically offer care across a broad range of medical issues whereas clinics may offer a more focused and specialized approach to cancer treatment
- Age is no longer an issue; comorbidities play more of a role in determining whether or not to have your transplant inpatient or outpatient
- The inability to have a caregiver with a patient 24/7 is also a deciding factor in this decision

How Do I Prepare for Autologous Stem Cell Transplant?

*Questions to ask your doctor about stem cell transplantation.*

- Am I a candidate for high-dose chemotherapy and stem cell transplantation?
- When is the best time for me to undergo transplantation?
- Does your center do stem cell transplants?
- How many transplants has your center performed in multiple myeloma in the last year?
- Is the procedure performed as an inpatient or outpatient?
- How long will I be in the hospital?
- What kind of changes in my lifestyle will I need to make?
- When do I go back to you for follow-up?
Can I use my Stem Cells for CAR T-cell Therapy?

### The Difference Between Autologous Stem Cell Transplant and CAR T-cell Therapy

<table>
<thead>
<tr>
<th>Patient's cells collected</th>
<th>Autologous stem cell transplantation</th>
<th>CAR T-cell therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of cells collected</th>
<th>Stem cells*</th>
<th>T cells*</th>
</tr>
</thead>
</table>

| Collected cells are engineered in a lab | No | Yes |

| Patient given chemotherapy before cells are infused back into patient | Yes (melphalan) | Yes (lymphodepletion therapy) |

| Total time before cells are reinfused | ~1 week | ~3–4 weeks |

| Currently approved by the FDA for the treatment of MM | Yes | Yes |

| Side effects of treatment | Fatigue, nausea and vomiting, diarrhea, mouth sores, increased risk of infection, and low blood counts | Cytokine release syndrome, neurotoxicity, low blood counts, risk of infection, fatigue, nausea and vomiting, and diarrhea |

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*A type of white blood cell that can identify, target, and attack MM cells

†Precursor cells that give rise to many types of blood cells
What Should I Expect After Stem Cell Transplant?

After the Transplant: The Road to Recovery

- Rest
- Improved nutrition
- Exercise
- Infection prevention
- Antivirals and antibiotics for 6–12 months after treatment
- Avoid crowds
- Ongoing follow-up with your doctor
- Restage myeloma 100 days after transplant
Post-Transplant Maintenance Therapy Options

- **Preferred**
  - Revlimid*

- **Other recommended regimens**
  - Veloce
  - Veloce-Revlimid ± dex#
  - Kyprolis-Revlimid
  - Darzalex ± Revlimid
  - Ixazomib†

- **Useful in certain circumstances**

*Category 1 recommendation. Based on high-level evidence, there is uniform NCCN consensus that the intervention is appropriate.

#Two drug maintenance recommended for high-risk MM.

†Ixazomib may be substituted for carfilzomib in select patients.

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What Vaccinations are Required Following ASCT, and When?

<table>
<thead>
<tr>
<th>Vaccination Record</th>
<th>Vaccine</th>
<th>Start Date</th>
<th># of Doses</th>
<th>Date Given</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inactivated influenza</td>
<td>Tetanus/Diphtheria/Acellular Pertussis (Tdap)</td>
<td>12 months</td>
<td>4 to 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haemophilus Influenzae Conjugate (Hib)</td>
<td>12 months</td>
<td>4 to 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inactivated Polio</td>
<td>12 months</td>
<td>4 to 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pneumococcal conjugate (PCV)</td>
<td>12 months</td>
<td>4 to 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hepatitis A and B (Recombiant)</td>
<td>12 months</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zoster Vaccine Recombinant</td>
<td>12 months</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Measles/Mumps/ Rubella</td>
<td>24 months</td>
<td>1 to 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Some centers do not vaccinate patients if they are on active treatment or have not recovered B-cell production. Good practice to ascertain that vaccination has worked (ie, check titers).
Will I Have to Go Through Another Transplant if I Relapse?

Second ASCT an Option for Early Relapse

Outcomes of ASCT in Patients with RRMM

High-dose chemotherapy with ASCT (if you are eligible) offers the best chance for long-lasting remission.

You can undergo ASCT as an inpatient (you stay in the hospital before, during, and immediately after the transplant) or an outpatient (you make daily visits to a clinic) procedure.

Second ASCT may be an option for some patients.
Questions & Answers

For more information, visit themmrf.org/educational-resources/
Myeloma Mentors® allows patients and caregivers the opportunity to connect with trained mentors. This is a phone-based program offering an opportunity for a patient and/or caregiver to connect one-on-one with a trained patient and/or caregiver mentor to share his or her myeloma journeys and experiences.

No matter what your disease state—smoldering, newly diagnosed, or relapsed/refractory—our mentors have insights and information that can be beneficial to both patients and their caregivers.

Contact the Patient Navigation Center at 888-841-6673 to be connected to a Myeloma Mentor or to learn more.
Join the MMRF Community!

National Walk/Run Program
- Atlanta | 10.26.24
- Boston | 10.12.24
- Chicago | 9.8.24
- Dallas | 11.16.24
- Detroit | 9.21.24
- Houston | 11.23.24
- Los Angeles | 8.17.24
- National Virtual | 12.14.24
- New York City | 10.5.24
- Philadelphia | 10.19.24
- San Francisco | 8.24.24
- Scottsdale | 12.7.24
- Tampa | 11.2.24
- Washington D.C. | 9.28.24

Other MMRF Event Programs
- Moving Mountains for Multiple Myeloma
- Half and Full Marathons
- Bike/Road to Victories
- Create Your Own Fundraiser

Upcoming Patient Education Events

**Save the Date**

<table>
<thead>
<tr>
<th>Program</th>
<th>Date and Time</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Summit</td>
<td>Saturday, May 4, 2024 9:00 AM – 12:30 PM ET  6:00 AM – 9:30 AM PT</td>
<td>Hearn Jay Cho, MD, PhD  Leora Giacoia, NP, FNP-BC  Sundar Jagannath, MD  Joshua Richter, MD  Samir Parekh, MD  Shambavi Richard, MD  Cesar Rodriguez, MD  Santiago Thibaud, MD</td>
</tr>
<tr>
<td>New York, NY &amp; Virtual</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(In collaboration with Mount Sinai)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Webinar</td>
<td>Monday, May 13, 2024 3:30 PM – 4:30 PM ET  12:30 PM – 1:30 PM PT</td>
<td>Craig E. Cole, MD  Amy Blake, NP-C</td>
</tr>
<tr>
<td>Understanding Your Lab Report</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For more information or to register, visit [themmrf.org/educational-resources](http://themmrf.org/educational-resources)
Resources

- Resource tab includes
  - Exhibit Hall
  - Speaker bios
  - Copy of the slide presentation
Need help with travel to a clinical study?

- The MMRF has partnered with the Lazarex Cancer Foundation to help provide more equitable access to clinical studies for multiple myeloma patients
- This partnership is one facet of the MMRF’s commitment to improve diversity and representation in myeloma clinical studies
- MMRF has provided $100,000 over 2 years to Lazarex to fund travel, lodging, and food for patients (and a travel companion) so that they can participate in clinical studies that are appropriate for them
- Patients are funded according to income guidelines and will be reimbursed for allowed expenses
- For more information on this program and to be connected with Lazarex, call our Patient Navigation Center at 1-888-841-6673

Thank you!