A REVOLUTIONARY APPROACH TO FIGHT BLOOD CANCER

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THE REALITY OF MULTIPLE MYELOMA

At 62, Marco’s life changed when a vertebral fracture left him struggling to walk.

Fatigue and recurrent infections followed, leading to a diagnosis of **multiple myeloma** (MM).

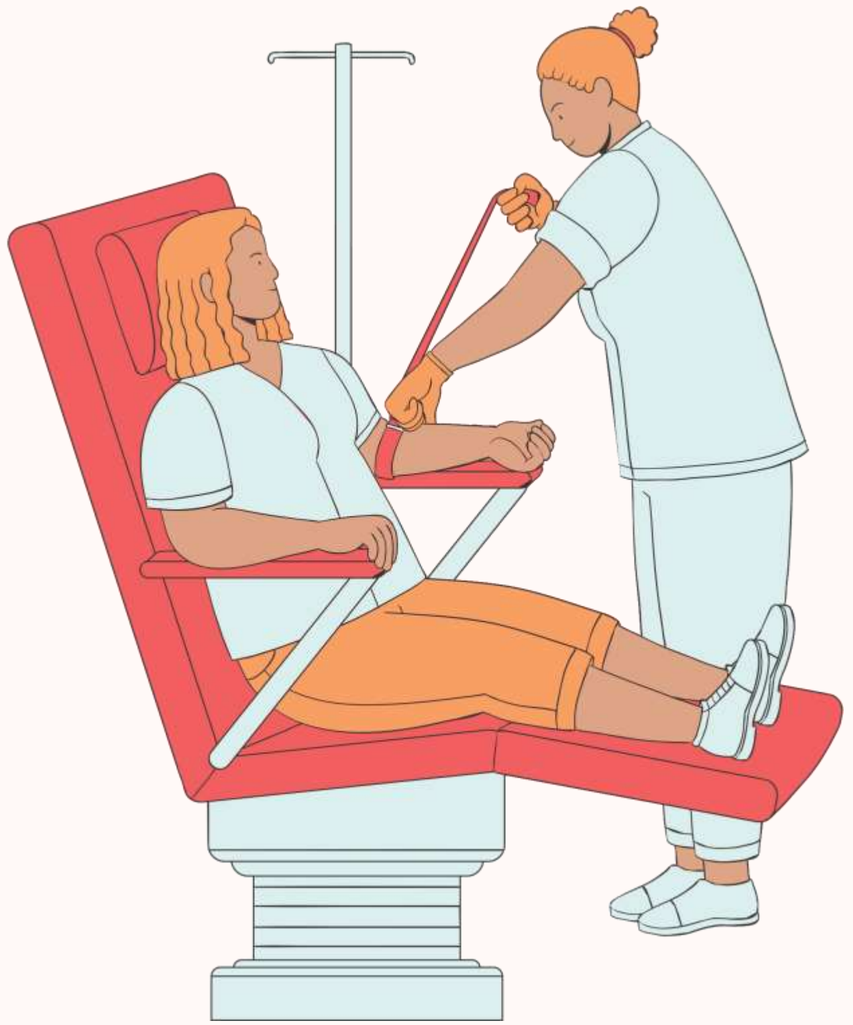
FROM SILENT TO ACTIVE DISEASE

What is Multiple Myeloma?

- A serious blood cancer that develops in the **bone marrow**.
- **Weakens** the immune system, reduces healthy blood cells, and damages bones.
- Thousands of patients face **fractures, kidney failure, and anemia**, making daily life a struggle.

Why Early Detection Matters

- MM progresses in stages: **MGUS → SMM → Active MM**.
- Many patients remain in early stages, uncertain if their condition will worsen
- Finding **new markers** to predict disease evolution could help initiate treatment earlier, before irreversible damage occurs.



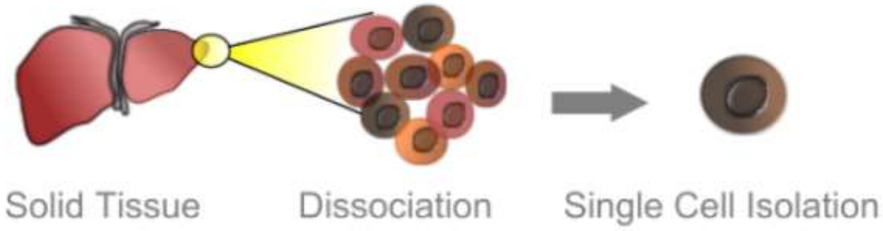
HOW CAN WE PREDICT DISEASE PROGRESSION?

Research Approach

- Identifying the molecular drivers of multiple myeloma progression.
- Using single-cell RNA sequencing (scRNA-seq) to analyze individual cancer cells.

Why This Matters

- By mapping how cancer cells differ from healthy ones, we can uncover key progression factors.
- This knowledge brings us closer to early intervention and personalized treatments for patients.



Understanding scRNA-seq

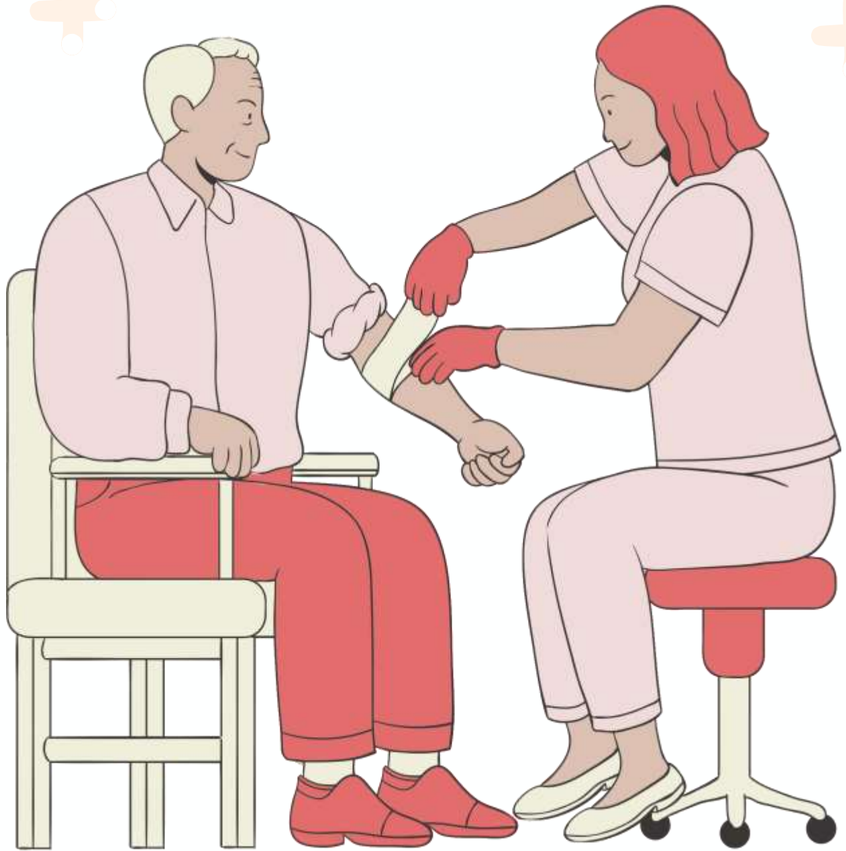
- Imagine a room full of people talking—without microphones, voices blend together.
- scRNA-seq gives each cell a "microphone", allowing us to study them **individually**.
- This helps us pinpoint genetic changes that drive the disease from silent to active stages.

FROM UNCERTAINTY TO PERSONALIZED TREATMENT

Towards Personalized Treatment

- Every patient's cancer is **unique**—our goal is to understand individual cancer cell behavior.

- scRNA-seq enables **personalized** therapies, targeting the specific drivers of disease progression.



The Impact of this Research

- **Fewer side effects** – Tailored treatments reduce unnecessary toxicity.
- **Longer remission periods** – Targeting key cancer pathways improves outcomes.
- **Better quality of life** – Helping patients maintain independence and well-being.

THANK YOU FOR YOUR ATTENTION

References

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Haque, A., Engel, J., Teichmann, S.A. et al. A practical guide to single-cell RNA-sequencing for biomedical research and clinical applications. Genome Med 9, 75 (2017). https://doi.org/10.1186/s13073-017-0467-4