Clinical application of RCE-Protein

Immuno-Oncology
Clinic Ikiru

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Introduction Resurrection-Clinics

Düsseldorf • Osaka • Kobe • Tokyo

Keihan Clinic and pharmacy, Osaka

R Mirai Clinic, Tokyo

CPC (Cell processing center), Osaka

Kobe Clinic, Kobe

Introduction to RCE-Protein contains GcMaf

Gc protein-derived Macrophage Activating Factor

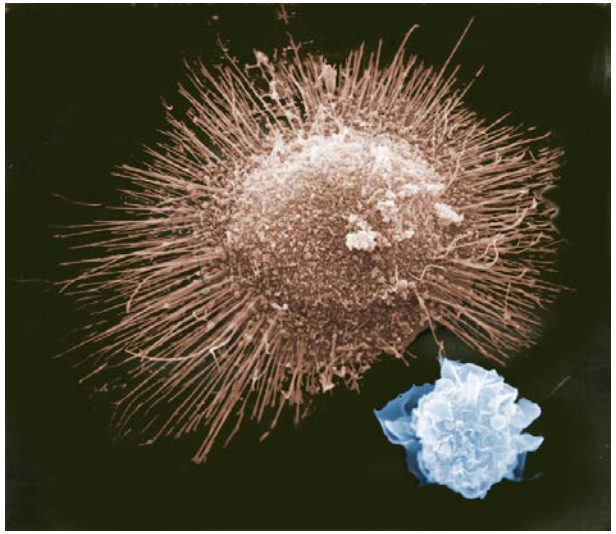
- What are macrophages?
- What is GcMAF?
- **4 types of GcMAF**
  - 1st Generation GcMAF
  - **2nd Generation GcMAF (RCE-Protein serum)**
  - **Oral colostrum GcMAF (RCE-Protein capsules)**
  - **GcMaf spray (RCE-Protein spray)**
  - **GcMaf candy (RCE-Protein candy)**

- What's new on Oral GcMAF therapy?
- How is oral GcMAF different from serum GcMAF?

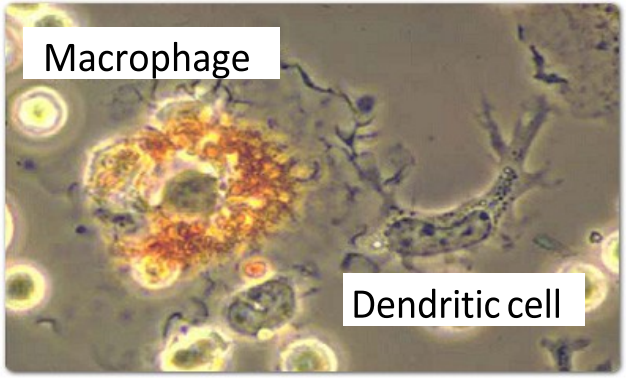
- RCE-Protein indication
  - Cancer
  - Infectious diseases
  - Hair regrowth
  - Allergies
  - Autism
  - Hepatitis
  - Chronic fatigue syndrome (CFS)
  - Multiple sclerosis (MS)
  - Rheumatoid arthritis (RA)
  - Lyme
  - Psoriasis

Macrophage morphology

- Macrophages are hungry white blood cells
- They engulf invading bacteria and target cells
- Move like amoebas
- Found in essentially all tissues



Adherent macrophage (peripheral blood). Universitätsklinik Ulm



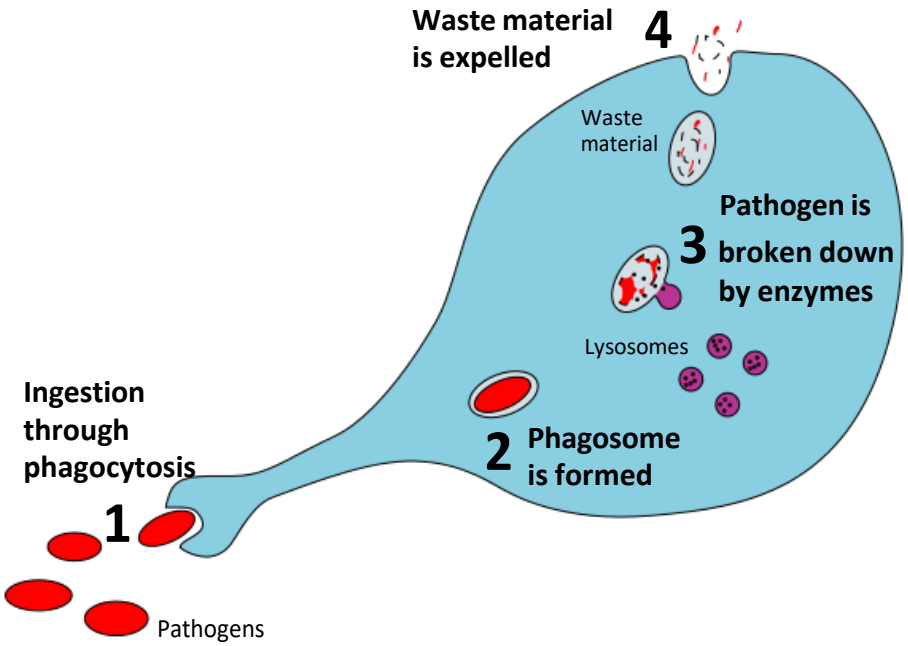
Macrophage functions

- Phagocytosis: Detecting, engulfing and destroying pathogens
- Removal of dying or dead cells and cellular debris

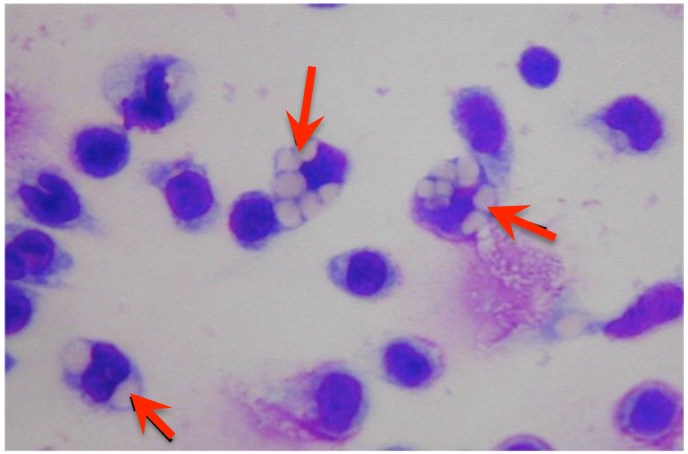
A macrophage of a mouse stretching its "arms" (pseudopodia) to engulf two particles, possibly pathogens. Wikipedia

- Scavenging worn-out cells and other debris
- Critical role in adaptive immunity
- Wound healing, tissue repair and regeneration

Macrophage phagocytosis

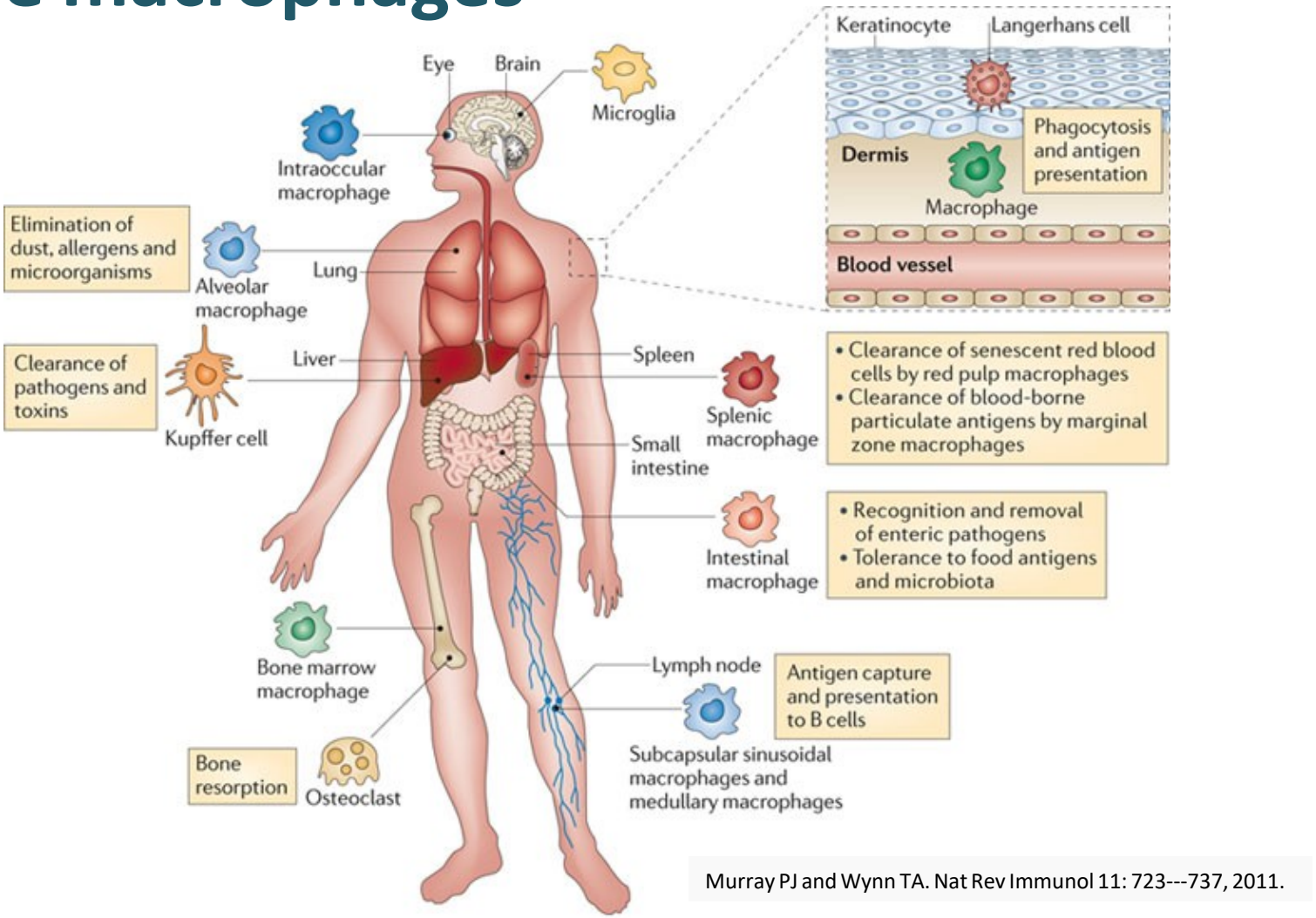


Steps of a macrophage ingesting a pathogen by phagocytosis.



Phagocytosis assay with Second Generation GcMAF. Arrows indicate cells internalized by macrophages.

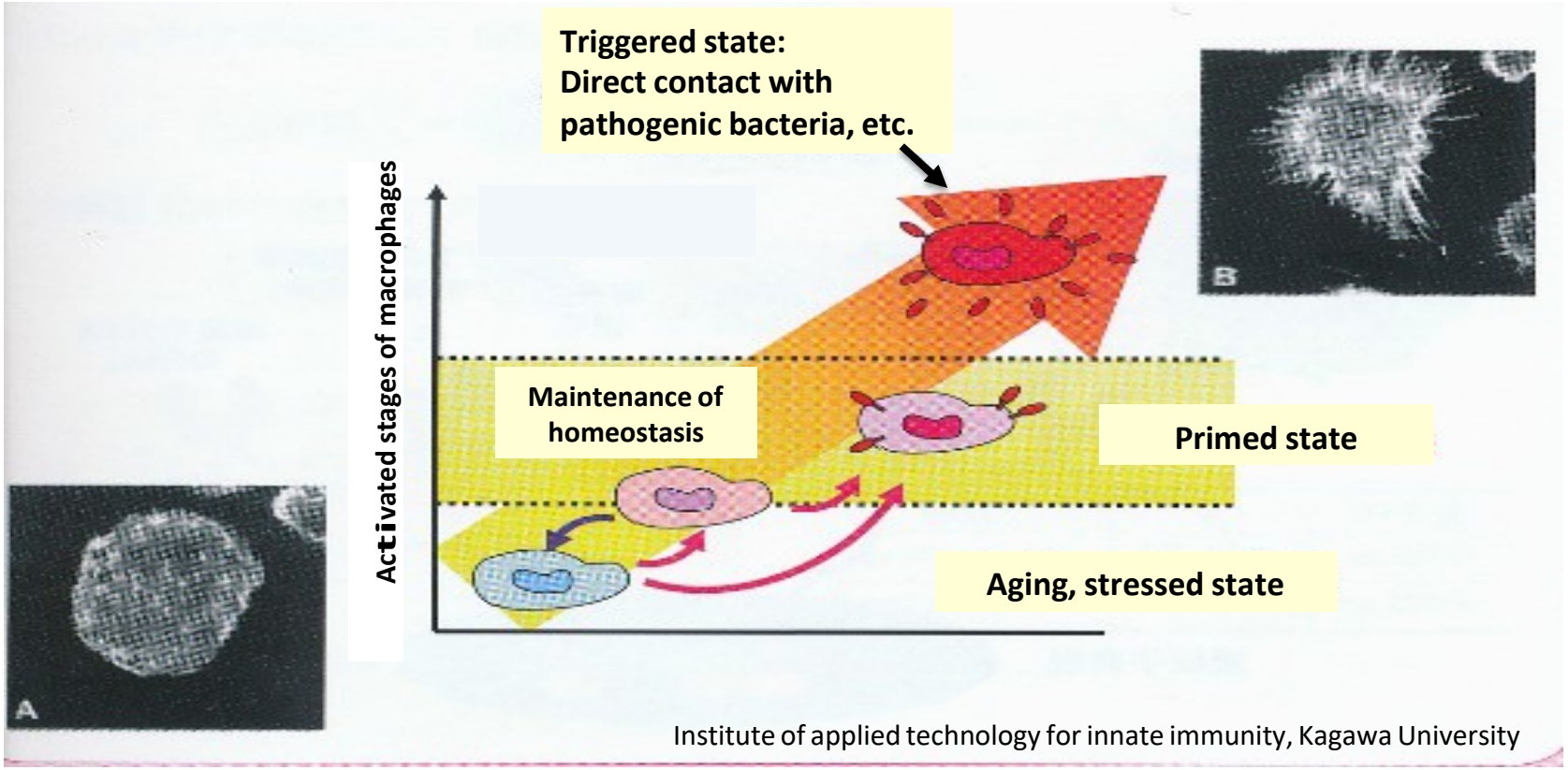
Tissue macrophages



Murray PJ and Wynn TA. Nat Rev Immunol 11: 723---737, 2011.

- Macrophages exist in nearly all tissues
- Tissue resident macrophages play critical roles in repair and regeneration of each tissue

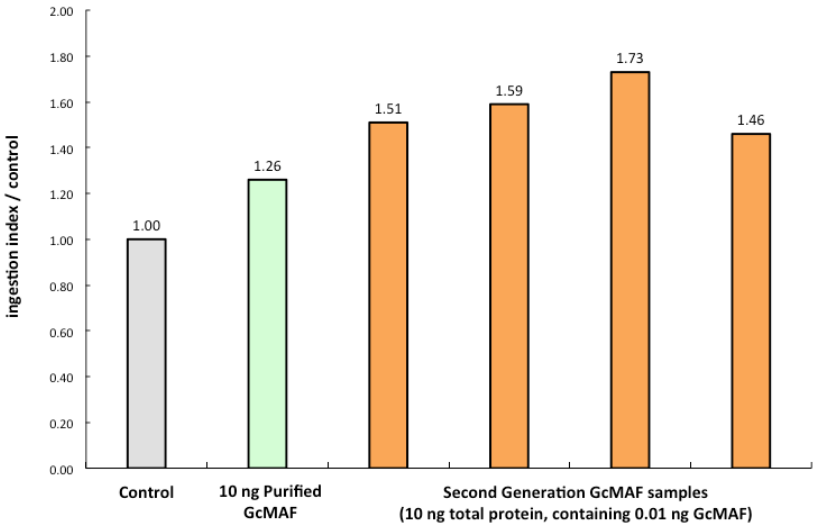
Macrophage activation steps (as proposed by Dr. Inagawa)



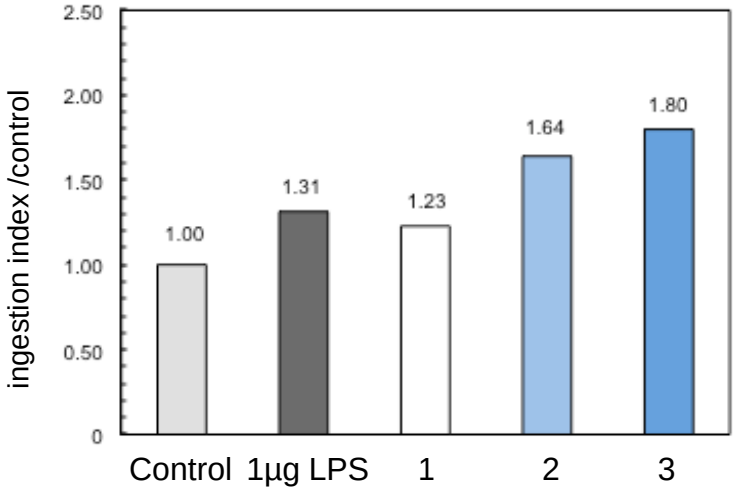
- **Triggered state:** Macrophages are fighting against pathogens, producing cytokines
- **Primed state:** Macrophages are "getting ready" against pathogens, without producing cytokines
- **Aged, stressed state:** Macrophages are not getting ready, even if pathogens are invading the body

RCE-Protein(GcMAF) phagocytic activity

2nd Generation GcMAF

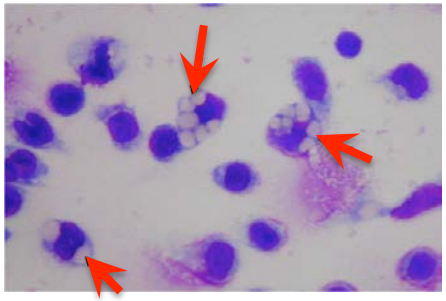


Oral GcMAF



1: 10 ng of untreated bovine colostrum
2: 10 ng of degalactosylated bovine colostrum
3: 10 ng of degalactosylated/desialylated bovine colostrum

- GcMAF is tested for macrophage phagocytic activity using mouse macrophages and sheep red blood cells at Tokushima University
- 2nd Generation GcMAF has very high activity
- Oral colostrum GcMAF has high macrophage phagocytic activity, equivalent to 100 ng 1st generation GcMAF



What is RCE-Protein capsules?

- GcMAF produced from bovine colostrum
- We don't need blood to produce oral GcMAF
- Colostrum is very similar to serum – very rich in protein, IgG, IgA and IgM
- No need for injections
- Oral administration - easy and convenient to take
- Classified as a food product in Japan and the Netherlands

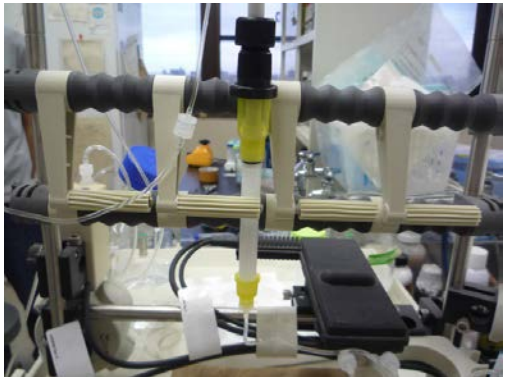
RCE-Protein capsules

Comparison between types of RCE-Protein

First Generation GcMAF

- Developed by Dr Yamamoto in 1991
- Low concentration (100 ng/0.25 ml, 1 dose)
- Low stability at room temperature
- Chemically isolated (purified), sterilization process using 0.22 µm filtration system
- 25-(OH) Vitamin D3 Affinity Column
- Affinity column has cross-contamination risk when used repeatedly; must be disposable

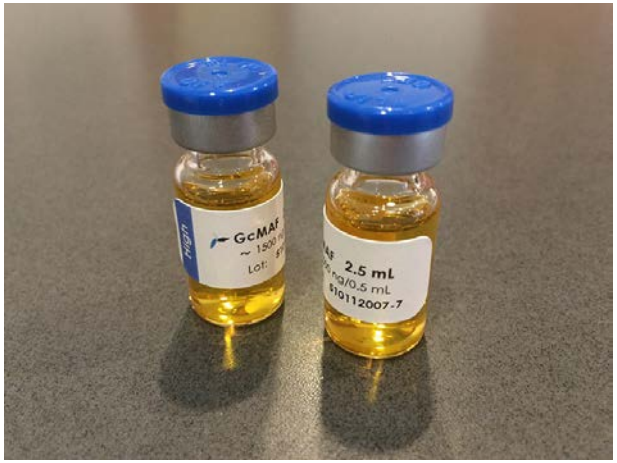
Vitamin D3 affinity column used for 1st generation GcMAF production



Comparison between types of RCE-Protein

Second Generation GcMAF

- Developed by Saisei Mirai and the University of Tokushima in 2010
- High concentration (1500 ng/0.5 ml, 1 dose)
- Significantly higher stability and macrophage activating activity
- Sterilization process using 0.22 µm filtration system
- New patented production process



2nd Generation GcMAF

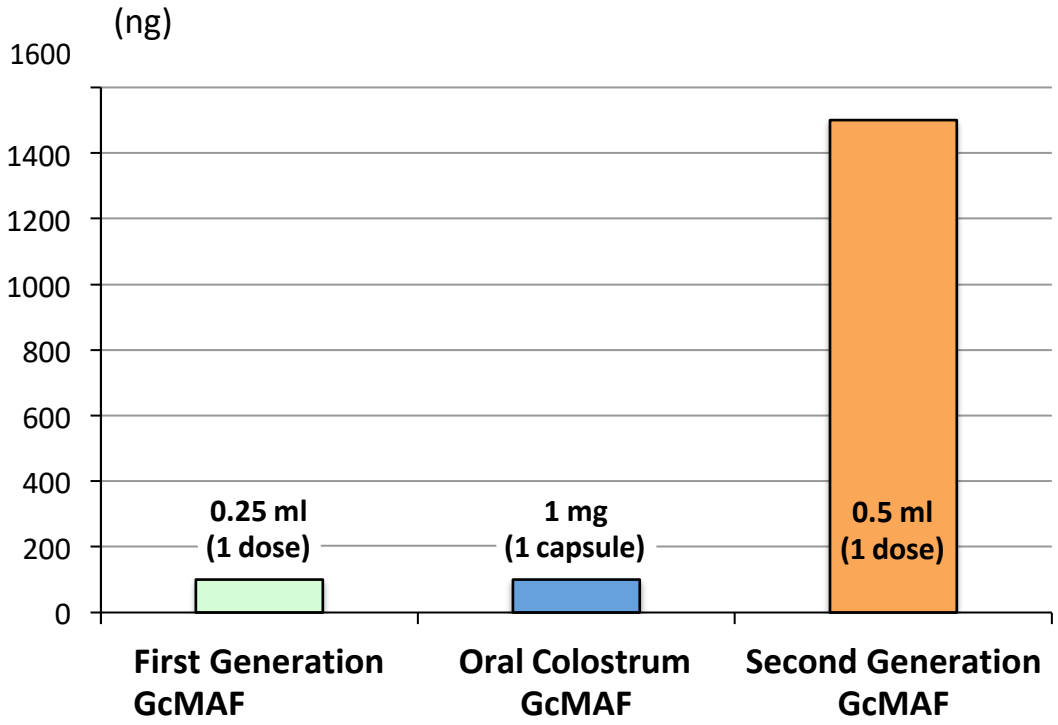
Saisei Mirai/RCE center

Comparison between types of RCE-Protein

Oral Colostrum GcMAF

- Developed by Saisei Mirai and Tokushima University in 2014
- GcMAF produced from bovine colostrum
- 1mg capsule has equivalent activity to 100ng GcMAF
- Enteric capsule for oral administration, powder for sublingual
- Target Payer‘s Patches/Gut
- New patents pending production process
- Permitted as a food product in Japan and The Netherlands

Comparison in concentration between types of RCE-Protein



- This graph compares the 3 types of GcMAF in a clinical setting
- First generation GcMAF has a much lower concentration due to purification
- Without albumin and uric acid, isolated (purified) GcMAF is much less stable

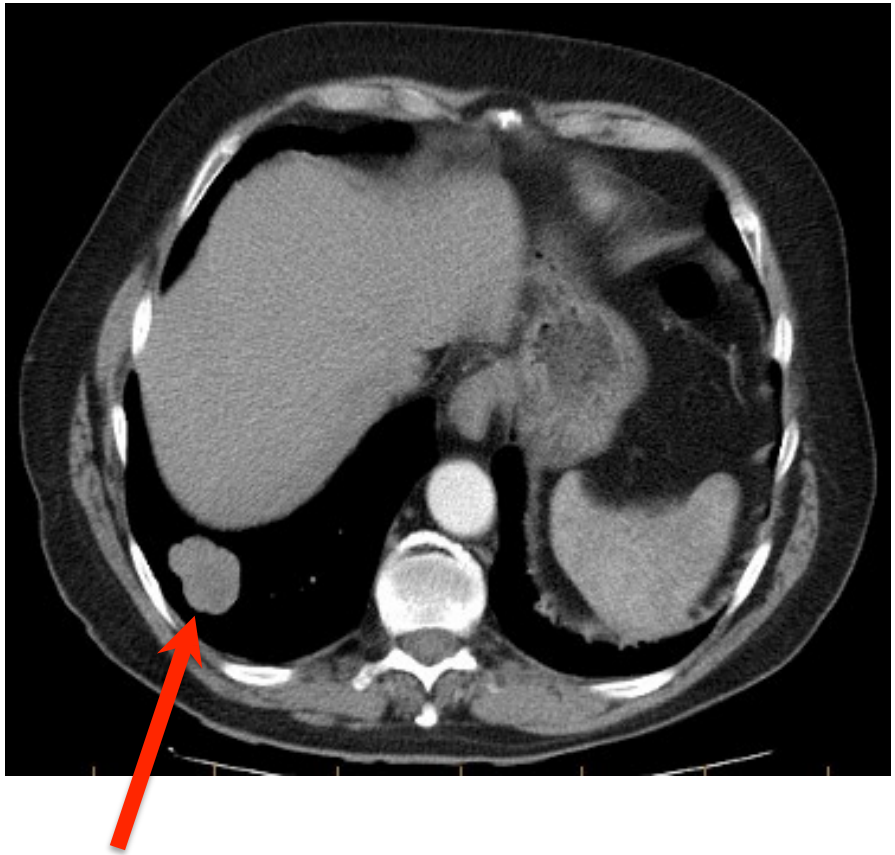
Case report: Non-small cell lung cancer

- **Mar 2015**, received 1 cycle SDT/PDT, Ozone therapy
- **20-Apr-2015**, CT scan shows low density area inside the tumor
- Radiologist report indicates there is no change in the size of the tumor
- **Improved symptoms:** better sleep quality and reduced frequency of night time urination (nocturia) after taking oral GcMAF
- Large dark brown "ugly-looking" mole (in the words of the patient's daughter) had disappeared from left shoulder after PDT/GcMAF treatment

Photodynamic therapy (PDT)

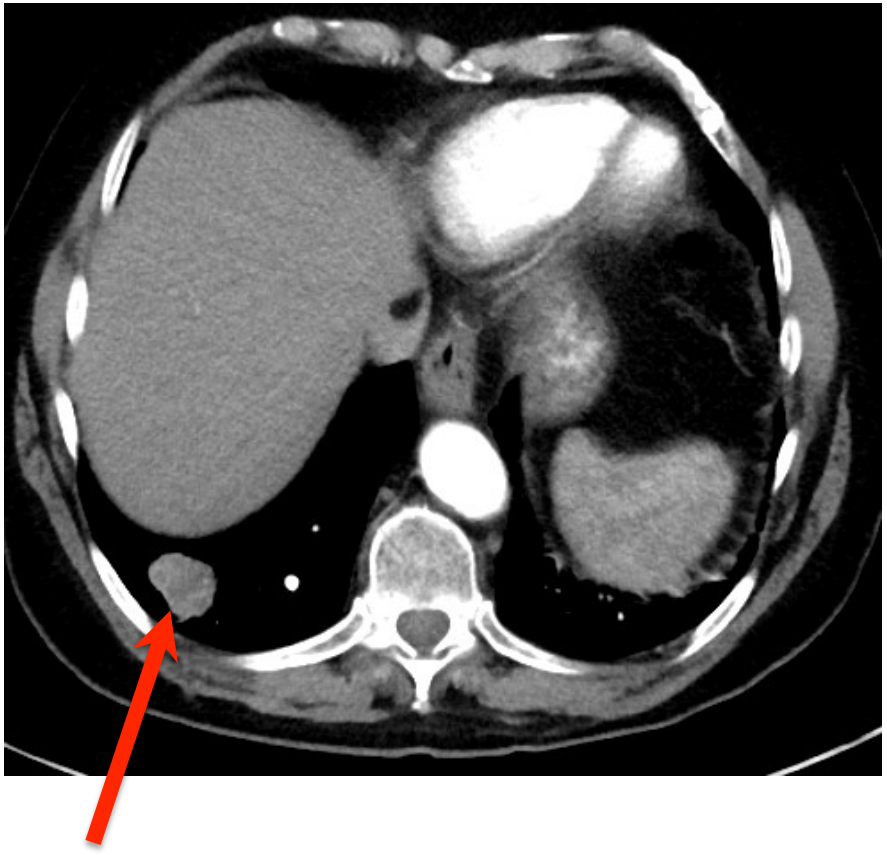
Case report: Non-small cell lung cancer

CT scan 13-Jan-2014



Lung tumor

CT scan 20-Apr-2015



Lung tumor showing lower density area
Inside the tumor indicating necrotic tissue

Gut immunity and new findings

- Gut bacteria have an intricate relationship with our immune system
- They play a critical role in training immune cells
- Important to the development of immune cells, known as **T helper 17 cells**
- The bacterium *Prevotella copri* was present in 75% of rheumatoid arthritis patients, causing inflammation in the gut
- Gut bacteria may be linked to allergy, obesity, rheumatoid arthritis and autoimmune diseases

Case report: 20 year old patient with atopic dermatitis

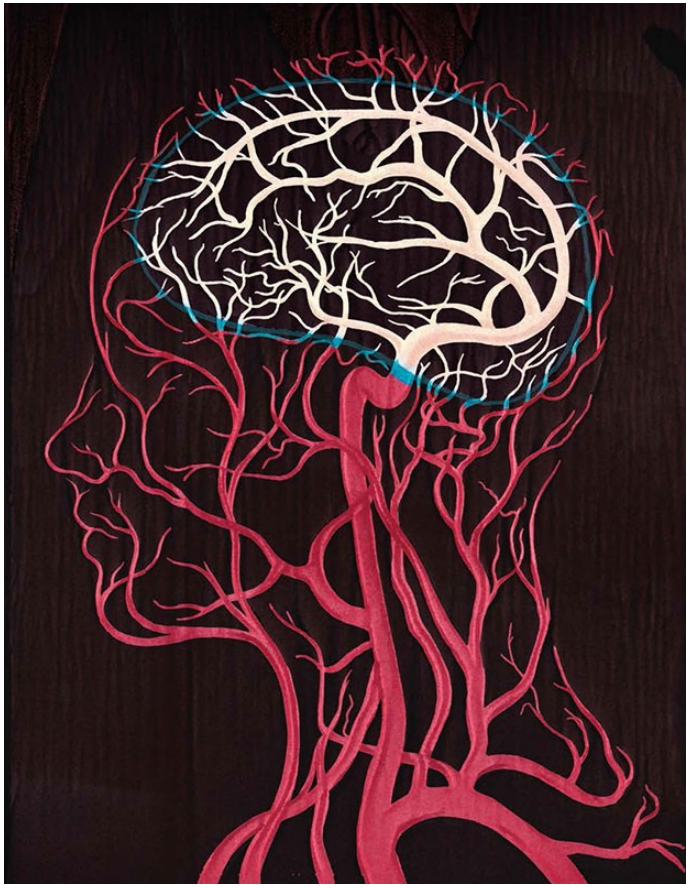
- 20 year old female with atopic dermatitis
- Her father also has atopic dermatitis
- Blood test showed high IgE (RIST): 861 (normal <170 IU/ml)
- **18-Dec-2014**, she started taking oral GcMAF, 2 capsules daily
- At first, her skin became sensitive and reddish, feeling itchy
- **Aber one month**, her skin became stable
- **Aber 2 months**, her skin became very smooth, silky and so}

Targeting the Blood-Brain Barrier

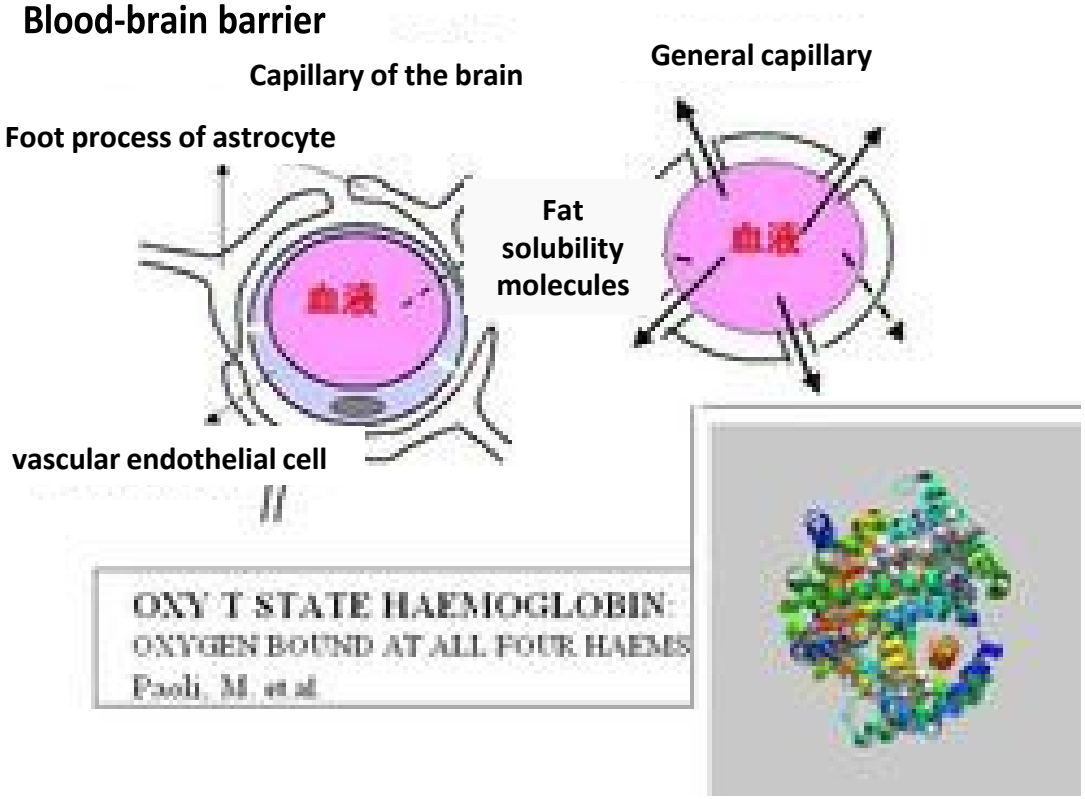
- The advent of two-photon microscopy made it possible to watch the blood-brain barrier in a living, breathing mouse
- **Microglia** are resident macrophages that patrol the brain and spinal cord for damaged cells and infectious agents
- Microglia also may protect and repair the blood-brain barrier as tight junctions
- Malfunctioning microglia could lead to a wide variety of neurodegenerative diseases, from Alzheimer's to Parkinson's
- Multiple Sclerosis (MS) is caused by the breakdown of myelin, a rubbery sheath of neurons
- MRI studies suggest breaches in the blood-brain barrier precipitate MS attacks, allowing too many white blood cells to cross the blood-brain barrier, attacking the myelin

Targeting the Blood-Brain Barrier

Neurosurgeons' group at Tokushima University showed that GcMAF can activate microglia in the brain using a mice model of cerebral infarction



Scientific American, June 2013



http://maruyama.tamaliver.jp/e154067.html

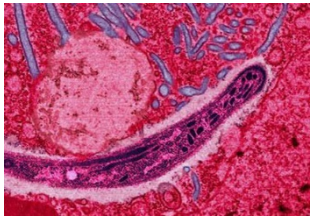
Commonly observed clinical effects of RCE-Protein capsules (oral GcMAF)

- Improved sleep, more energy; reduced fatigue
- Improved digestion, reduced nocturnal urination
- Improved hair regrowth and reduced hair loss due to natural ageing
- Improved skin condition & smoothness
- Improved control or curing of infectious diseases such as virus, bacteria and other pathogens
- Reduced allergy symptoms, pollinosis and atopy

Current indications for RCE-Protein

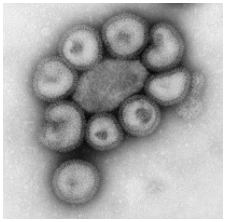
- Various infectious diseases
  - Many acute infectious diseases
  - Many chronic infectious diseases
- Cancer
- Multiple sclerosis (MS)
- Rheumatoid arthritis (RA)
- Lyme disease
- Chronic fatigue syndrome (CFS)
- Autism
- Autoimmune diseases
- Alopecia, hair loss
- Atopic dermatitis
- Pollinosis
- Skin rejuvenation (repair, anti-aging effects)
- Psoriasis

Malaria parasite



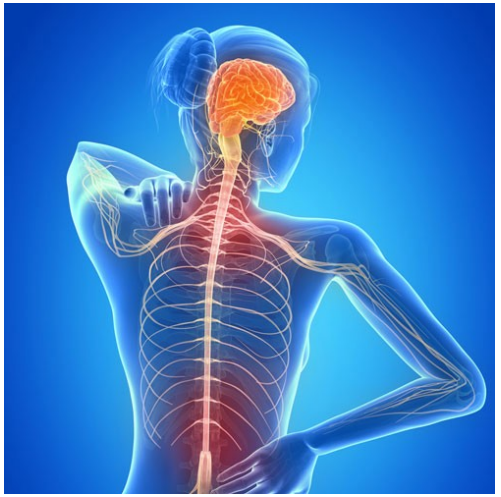
Ebola virus

Influenza virus



New possible indications for RCE-Protein

- Alzheimer’s disease
- Dementia
- Brain degenerative disease, such as Parkinson’s disease
- Epilepsy



Thank you