

Development of CSF-1R Antibody Drug to Target Tumor Associated Macrophage for Cancer Immunotherapy

Development Center for Biotechnology

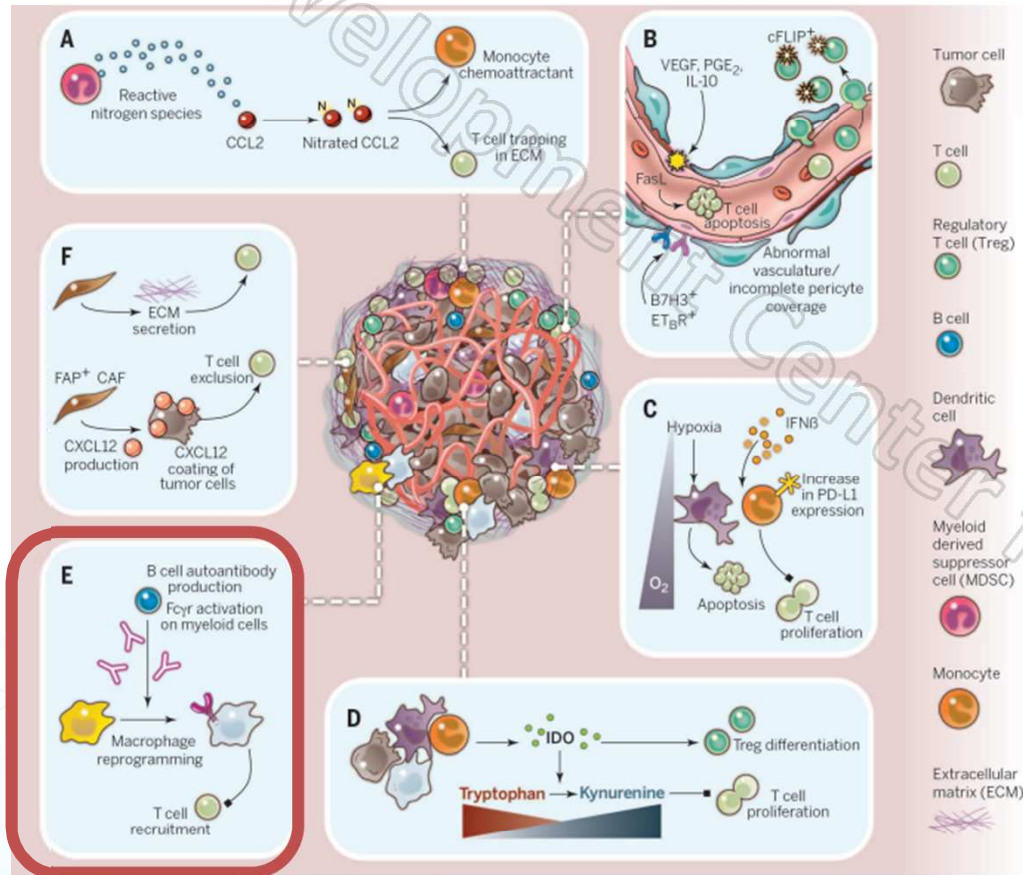
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Tumor microenvironment (TME) leads to immune suppression



Joyce JA, Science 2015

Tumor-Associated Macrophages as Major Players in the Tumor Microenvironment

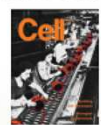
Targeting Tumor-Associated Macrophages with Anti-CSF-1R Antibody Reveals a Strategy for Cancer Therapy

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Cancer Cell 2014; 25:846

CANCER DISCOVERY

OncoImmunology



Macrophages limit chemotherapy

Tumor-Associated Macrophages: From Mechanisms to Therapy

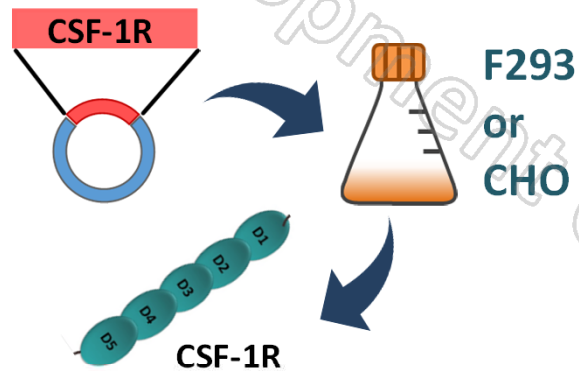
Accessories to the Crime: Functions of Cells Recruited to the Tumor Microenvironment

Cancer Cell

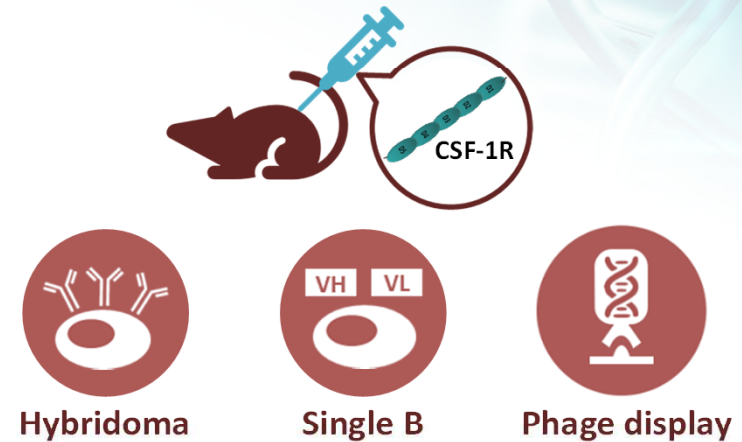
Special Collection

Development of CSF-1R mAb

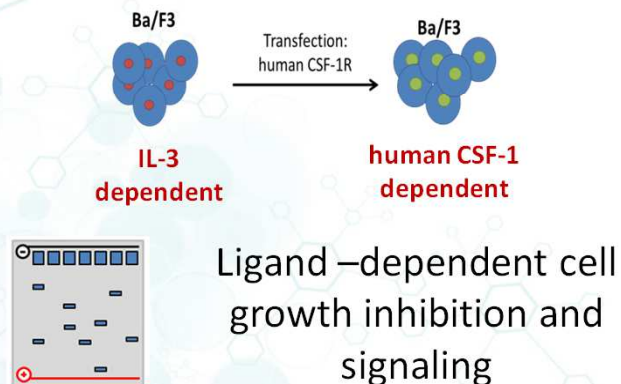
1. Antigen preparation



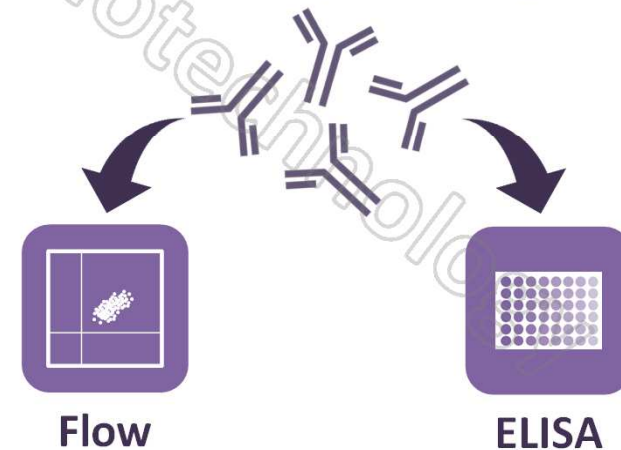
2. Immunization



4. Functional assay

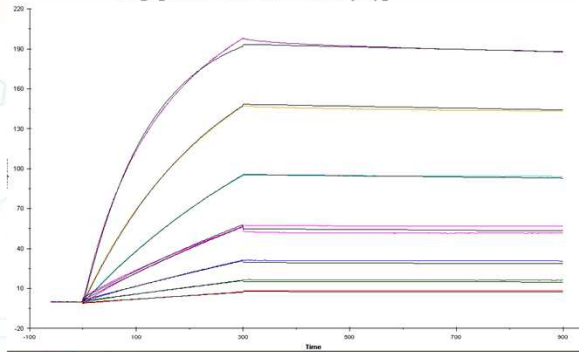
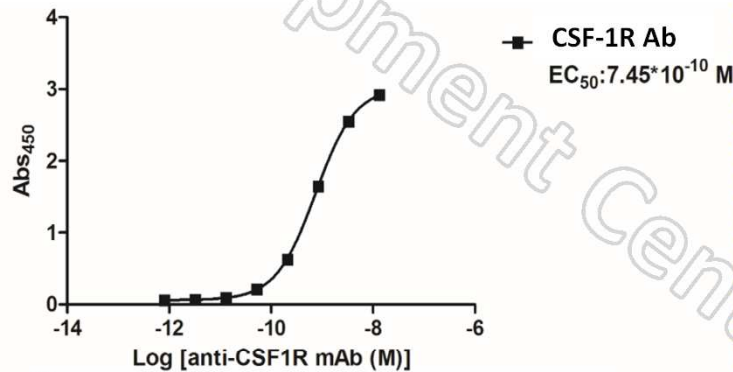


3. Antibody screening



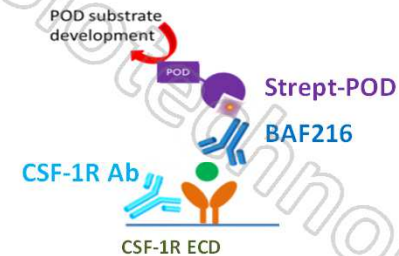
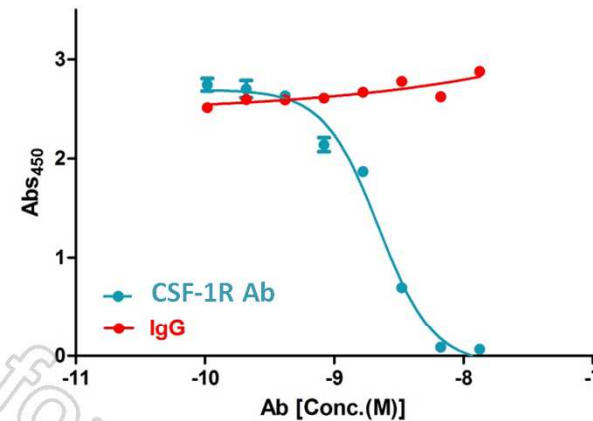
Properties of CSF-1R Lead Ab-1

Binding Property



ka(1/Ms)	kd(1/s)	KD(M)	Rmax(RU)	Chi ² (RU ²)
3.992E+5	4.904E-5	1.228E-10	213.8	2.22

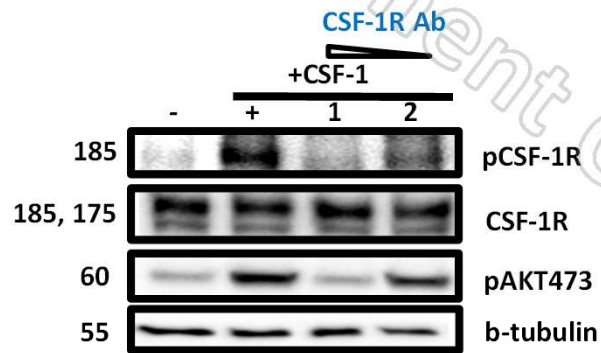
Blocking Property



CSF-1R Lead Ab: Binds to CSF-1R and Blocks the binding between CSF-1 and CSF-1R

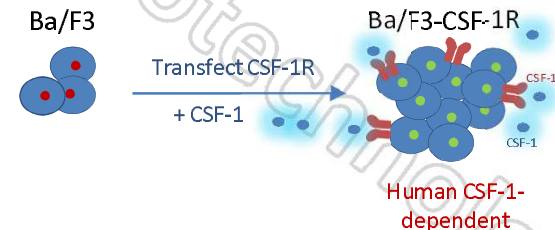
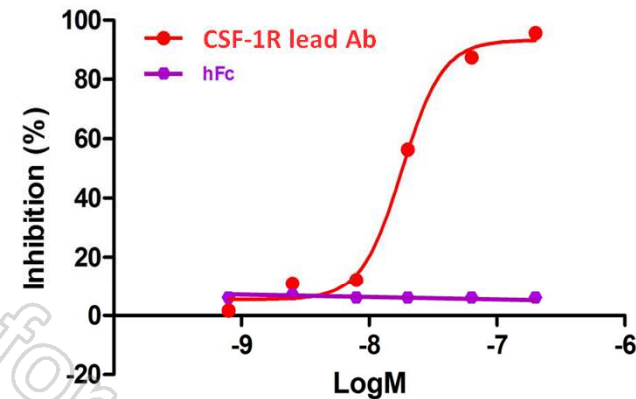
Properties of CSF-1R Lead Ab-2

CSF-1R signaling blocking



- : Negative control (THP-1 only)
 +: Positive control (+ CSF-1)
 1: + CSF-1R Ab 5 ug/ml
 2: + CSF-1R Ab 0.5 ug/ml

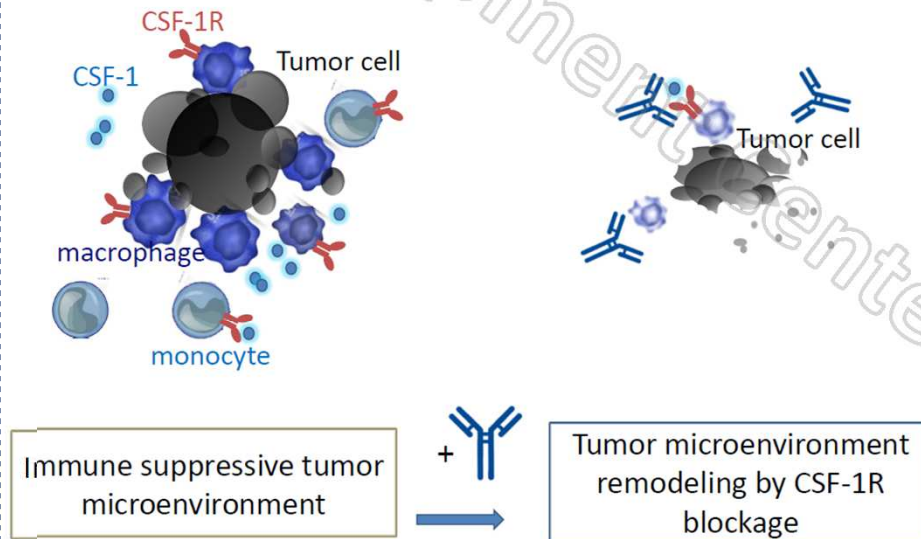
Ligand-dependent Cell growth Inhibition



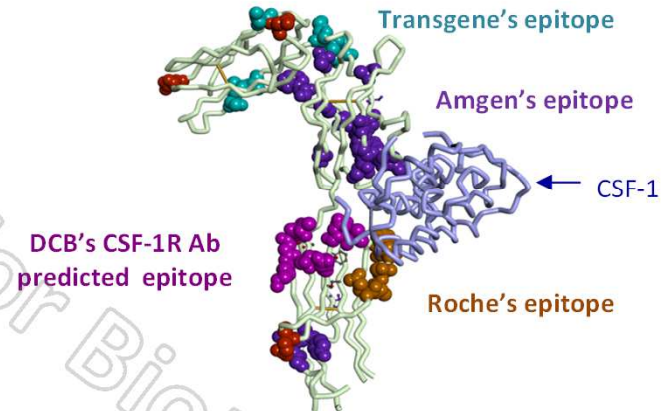
CSF-1R Lead Ab can inhibit Ligand-dependent cell growth and downstream signaling

Mechanism of Action of CSF-1R mAb

MOA



Patent



US provisional patent has been filed (62/779,455)

CSF-1R Lead Ab have unique CDR sequences and binding epitope