

Technical Information

cRGD Flamma® Series

Overview

Integrins are heterodimeric transmembrane receptors for cell adhesion to extracellular matrix (ECM) proteins and play important roles in certain cell-cell adhesions. In addition, they make transmembrane connections to the cytoskeleton and activate many intracellular signaling pathways. Because of their role in tumor angiogenesis and progression, integrins have become important diagnostic and therapeutic targets. Integrin $\alpha_v\beta_3$ is generally expressed in low levels on the epithelial cells and mature endothelial cells, but it is highly expressed in many solid tumors. The $\alpha_v\beta_3$ levels correlate well with the potential for tumor metastasis and aggressiveness, which make it an important biological target for development of antiangiogenic drugs and molecular imaging probes for early tumor diagnosis. Cyclic tripeptide arginine-glycine-aspartate (RGD) is well-known to bind preferentially to $\alpha_v\beta_3$ integrin with high affinity. Cyclic RGD is an effective ligand for tumor targeting since integrin $\alpha_v\beta_3$ is overexpressed not only on tumoral endothelium but also on various cancer cells. Thus, targeting tumor cells or tumor vasculature by RGD-based strategies is a promising approach for delivering anticancer drugs or diagnostic agents. Cyclic RGD peptides are also able to bind $\alpha_v\beta_5$, $\alpha_5\beta_1$, $\alpha_6\beta_4$, $\alpha_4\beta_1$, and $\alpha_v\beta_6$ integrins, which may help enhance their tumor uptake due to the increased receptor population. BioActs developed cRGD Flamma® series as effective fluorescent probes for the detection of angiogenesis and tumor cells. The probes are made up of various fluorophores conjugated cyclic RGD. We offer cRGD Flamma® series as in vivo fluorescent probes for imaging of blood vessels, tumors and angiogenesis.

Table 1. cRGD Flamma® series list

Cat. No.	Product name	Ex _{Max} (nm)	Em _{Max} (nm)	Common filter set	Excitation source	Size
ARW1025	cRGD, FAM	492	519	FITC	488 nm	0.5mg, 1mg, 5mg
ARW1011	cRGD, Flamma® 552	550	565	TRITC	488, 532 nm	0.5mg, 1mg, 5mg
ARR1001	cRGD, TAMRA	543	575	TRITC	488, 532 nm	0.5mg, 1mg, 5mg
ARW1415	cRGD, Flamma® 581	581	596	TRITC	488, 532 nm	0.5mg, 1mg, 5mg
ARW1215	cRGD, Flamma® 648	648	663	Cy®5	594, 633 nm	0.5mg, 1mg, 5mg
ARW1501	cRGD, Flamma® 675	675	691	Cy®5.5	633, 680 nm	0.5mg, 1mg, 5mg
ARW1301	cRGD, Flamma® 749	749	774	Cy®7	680 nm	0.5mg, 1mg, 5mg
ARW1601	cRGD, Flamma® 774	774	806	Cy®7.5	785 nm	0.5mg, 1mg, 5mg
ARO1601	cRGD, ICG	785	821	Cy®7.5	785 nm	0.5mg, 1mg, 5mg

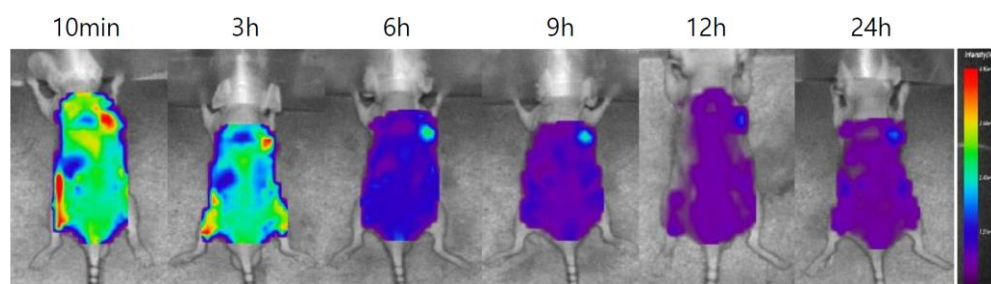


Figure 1. Breast cancer cell imaging using cRGD Flamma® 675

In vivo Imaging protocol

1. Preparation of Xenograft tumor model

- ① MDA-MB-231 human breast cancer cells (1.0×10^7) are injected subcutaneously on the female nude mouse shoulder.
- ② After the tumor cells have grown to about 50-80 mm³, administer the drug.

2. Injection and Fluorescence imaging

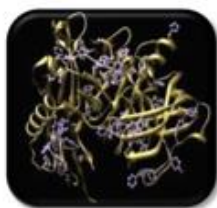
- ① Fluorescence imaging would be performed up to 24 hours after injection using the optical imaging system.
- ② Prepared mice is injected intravenously with 100 µg / 200 µL of cRGD Flamma® series and images will be taken at appropriate time interval.

Custom Labeling Service

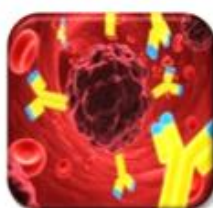
Based on accumulated know-how and technologies, BioActs provide a wide range of custom services such as protein fluorescence labeling, organic synthesis, oligonucleotide synthesis upon customers' request. Our reliable technology has acknowledged by our clients from domestic and overseas universities, institutions, in vitro diagnostic and pharmaceutical companies and has enabled to steadily conduct their requirements. In addition, we can introduce fluorescent materials to many other compounds such as organic and inorganic compounds, drugs, hormones, polymer, peptides, proteins, antibodies, etc. We also can provide chemical and optical analytical data, along with cell and animal experiments.



Nucleic acid



Peptide/Protein



Antibody



Small molecules
/Polymer

Technical Support

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SDS (Safety Data Sheets) You can find SDS at www.bioacts.com, the official website of BioActs.

CoA (Certificate of Analysis) provides detailed quality information of each product. To see CoA, check the lot number written on each product's page at www.bioacts.com, when having trouble with check, contact to our technical support team

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