Training

The effect of the MEK inhibitor selumetinib has also been discouraging.

BioBERT-NER

T_1 T_2 T_3 ... T_N

MEK

ResNet50-ImageNet

I_1	$I_1 \cdot T_1$	$I_1 \cdot T_2$	$I_1 \cdot T_3$	...	$I_1 \cdot T_N$
I_2	$I_2 \cdot T_1$	$I_2 \cdot T_2$	$I_2 \cdot T_3$	...	$I_2 \cdot T_N$
I_3	$I_3 \cdot T_1$	$I_3 \cdot T_2$	$I_3 \cdot T_3$	...	$I_3 \cdot T_N$
⋮	⋮	⋮	⋮	⋱	⋮
I_N	$I_N \cdot T_1$	$I_N \cdot T_2$	$I_N \cdot T_3$	...	$I_N \cdot T_N$

(a)

Training

Finally, a recent study has shown that works MEK is activated by BRAF.

Text Encoder BioBERT-RE

T_1 T_2 T_3 ... T_N

BRAF → MEK

Image Encoder ResNet50-ImageNet

I_1	$I_1 \cdot T_1$	$I_1 \cdot T_2$	$I_1 \cdot T_3$	...	$I_1 \cdot T_N$
I_2	$I_2 \cdot T_1$	$I_2 \cdot T_2$	$I_2 \cdot T_3$	...	$I_2 \cdot T_N$
I_3	$I_3 \cdot T_1$	$I_3 \cdot T_2$	$I_3 \cdot T_3$	...	$I_3 \cdot T_N$
⋮	⋮	⋮	⋮	⋱	⋮
I_N	$I_N \cdot T_1$	$I_N \cdot T_2$	$I_N \cdot T_3$	...	$I_N \cdot T_N$

(b)

Inference

The principal pathways include [gene] Pathways.

HUGO dictionary

AKT MEK ERK MTOR ...

MEK
MTOR
⋮
ERK
AKT

pathCLIP-BioBER-NER

T_1 T_2 ... T_N

MEK1/2

pathCLIP-ResNet50

I_1	$I_1 \cdot T_1$	$I_1 \cdot T_2$	...
...	...	...	...

MEK

(c)

Inference

gene1 [activates/be activated by/ Inhibits/be inhibited by] gene2.

HUGO dictionary

AKT MEK ERK MTOR ...

MEK1/2

ERK1/2

MEK1/2 inhibits ERK1/2

MEK1/2 is inhibited by ERK1/2

MEK1/2 activates ERK1/2

MEK1/2 Is activated by ERK1/2

Text Encoder pathCLIP-BioBERT-RE

T_1 T_2 T_3 T_4

MEK1/2 → ERK1/2

Image Encoder pathCLIP-ResNet50

I_1	$I_1 \cdot T_1$	$I_1 \cdot T_2$	$I_3 \cdot T_3$	$I_4 \cdot T_4$

MEK1/2 activates ERK1/2

(d)