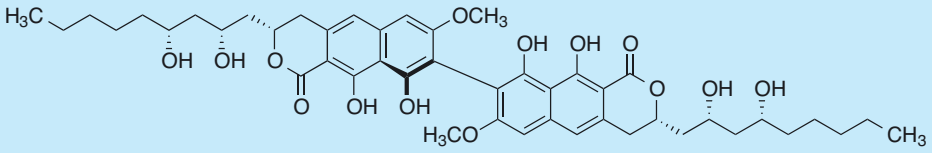
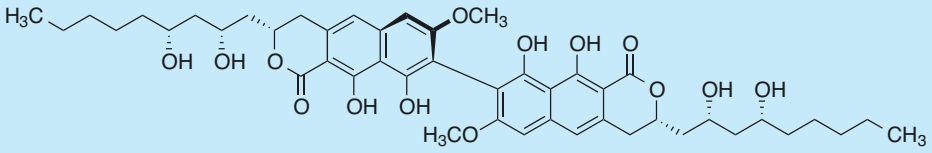
Dinapinone

1. Discovery, producing organism and structures[1-3)]

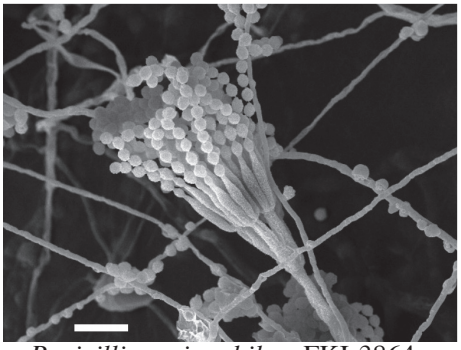
Dinapinone A (a mixture of dinapinone A1 and A2) was discovered in a culture broth of *Penicillium pinophilum* (current name: *Talaromyces pinophilus*) FKI-3864 and shown to be an inhibitor of triacylglycerol synthesis in intact Chinese hamster ovary K1 cells as well as in Raji cells. The two constituent compounds are dimers of a monomer of dihydronaphthopyranone. The monomers, named monapinones A-E were also found as metabolites of same microbe strain[3)].



Dinapinone A1



Dinapinone A2



Penicillium pinophilum FKI-3864
(*Talaromyces pinophilus* FKI-3864)

2. Physical data (Dinapinone A)

Yellow amorphous solid. $C_{46}H_{58}O_{14}$;
mol wt 834.94. Sol. in EtOAc, $CHCl_3$.

3. Biological activities[1)]

1) Effect on lipid synthesis in CHO-K1 and Raji cells

Dinapinone A inhibited [^{14}C]-triacylgycerol (TG) and [^{14}C]-choresteryl ester (CE) synthesis in a dose-dependent manner in CHO-K1 and Raji cells, with IC_{50} values of 0.097 and 0.31 μM, respectively. However, dinapinone A1 showed no effect on [^{14}C]-triacylgycerol synthesis at 12 μM. When each the two constituent compounds were tested alone, dinapinone A2 showed less potent inhibitory activity than dinapinone A.

	IC_{50} in CHO-K1 cells (μM)			IC_{50} in Raji cells (μM)	
	CE	TG	PL	TG	PL
Dinapinone A	0.31	0.097	>1.2	0.38	>1.2
Dinapinone A1	>12	>12	>12	>12	>12
Dinapinone A2	5.2	0.65	>12	5.4	>12

CE: choresteryl ester, TG: triacylgrycerol, PL: phospholipid

4. References

1. [1094] S. Ohte *et al*., *J. Antibiot*. **64**, 489-494 (2011)
2. R. Uchida *et al*., *J. Antibiot*. **65**, 419-425 (2012)
3. K. Kawamoto *et al*., *J. Antibiot*. **64**, 503-508 (2011)