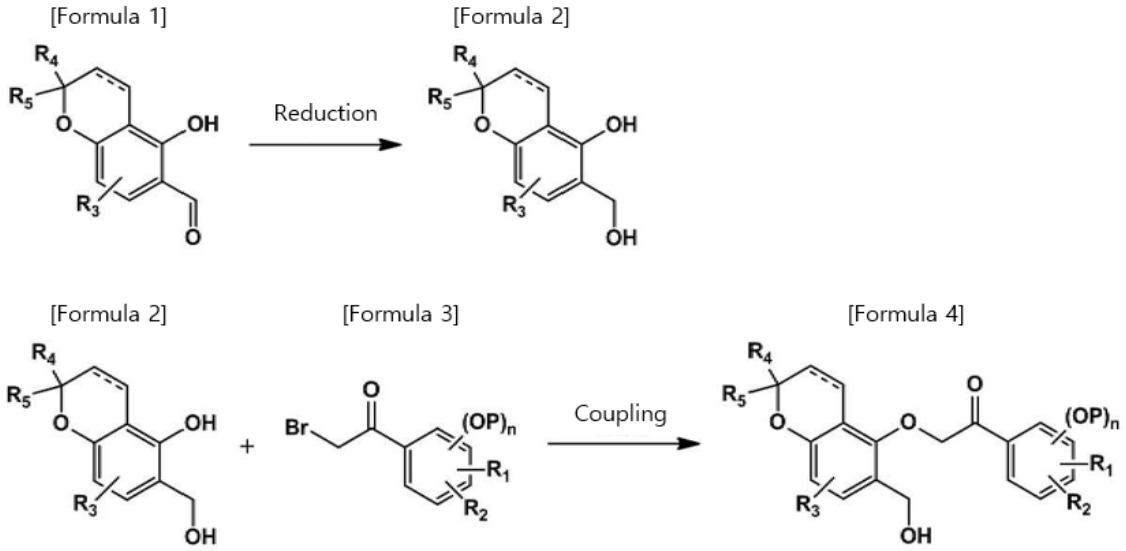
## CLAIMS

1. A method for synthesizing a 2-((6-(hydroxymethyl)chromen-5-yl)oxy)-1-phenylethanone derivative represented by Formula 4, the method comprising steps of:

(a) reducing a compound of Formula 1 to produce a compound of Formula 2; and

(b) coupling the compound of Formula 2 with a compound of Formula 3:

[Reaction Scheme 1]




wherein

the dotted line is an optional double bond;

$R_1$ and $R_2$ are each independently any one of a hydrogen atom; a substituted or unsubstituted linear or branched $C_1$-$C_6$ alkyl group; a halogen atom; a substituted or unsubstituted

linear or branched $C_1$–$C_6$ alkoxy group; a substituted or unsubstituted linear or branched $C_1$–$C_4$ thioalkyl group; a substituted or unsubstituted allyloxy group; a substituted or unsubstituted aryloxy group; and a phenyl group;

$R_3$ is any one of a hydrogen atom; a $C_1$–$C_3$ alkyl group; a $C_1$–$C_3$ alkoxy group; and a halogen atom;

$R_4$ and $R_5$ are each independently any one of a hydrogen atom and a $C_1$–$C_2$ alkyl group;

P is any one of a substituted or unsubstituted linear or branched $C_1$–$C_4$ alkyl group; a substituted or unsubstituted benzyl group; an allyl group; a t-butyldimethylsilyl group; t-butyldiphenylsilyl group; a dimethylphenylsilyl group; a trimethylsilyl group; $MeSO_2$, a p-toluenesulfonyl group; and a 2,4,6-trimethylbenzenesulfonyl group;

n is from 1 to 3;

when OP is plural in number, they are the same or different; and

the substituent for the substituted alkyl group, substituted alkoxy group, substituted thioalkyl group, substituted allyloxy group, substituted aryloxy group or substituted benzyl group is any one of a benzyloxy group, a halogen atom, a linear or branched $C_1$–$C_5$ alkyl group, a linear or branched $C_1$–$C_5$ alkoxy group, a linear or branched $C_1$–$C_3$ thioalkyl group, a nitro group, and a naphthalene

group.

2. The method of claim 1, wherein step (b) is performed under a basic condition.

3. The method of claim 2, wherein the basic condition is formed by adding at least one basic compound selected from among sodium hydroxide (NaOH), potassium hydroxide (KOH), sodium carbonate ($Na_2CO_3$), lithium carbonate ($Li_2CO_3$), potassium carbonate ($K_2CO_3$), sodium hydrogen carbonate ($NaHCO_3$), potassium hydrogen carbonate ($KHCO_3$), triethylamine, and pyridine.

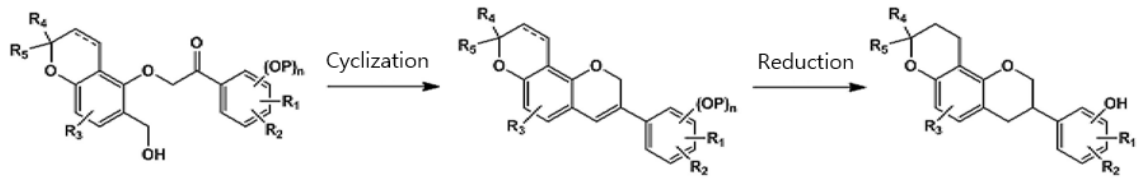
4. A method for synthesizing a 3-phenyl-2,3,4,8,9,10-hexahydropyrano[2,3-f]chromene derivative of Formula I, the method comprising steps of:

(i) producing a compound of Formula 4 using the method according to any one of claims 1 to 3, and cyclizing the compound of Formula 4 to produce a compound of Formula 5; and

(ii) reducing the compound of Formula 5:

[Reaction Scheme 2]

[Formula 4] [Formula 5] [Formula I]




wherein

the dotted line is an optional double bond;

$R_1$ and $R_2$ are each independently any one of a hydrogen atom; a substituted or unsubstituted linear or branched $C_1$–$C_6$ alkyl group; a halogen atom; a substituted or unsubstituted linear or branched $C_1$–$C_6$ alkoxy group; a substituted or unsubstituted linear or branched $C_1$–$C_4$ thioalkyl group; a substituted or unsubstituted allyloxy group; a substituted or unsubstituted aryloxy group; and a phenyl group;

$R_3$ is any one of a hydrogen atom; a $C_1$–$C_3$ alkyl group; a $C_1$–$C_3$ alkoxy group; and a halogen atom;

$R_4$ and $R_5$ are each independently any one of a hydrogen atom; and a $C_1$–$C_2$ alkyl group;

P is any one of a substituted or unsubstituted linear or branched $C_1$–$C_4$ alkyl group; a substituted or unsubstituted benzyl group; an allyl group; a t-butyldimethylsilyl group; t-butyldiphenylsilyl group; a dimethylphenylsilyl group; a trimethylsilyl group; $MeSO_2$; a p-toluenesulfonyl group; and a 2,4,6-trimethylbenzenesulfonyl group;

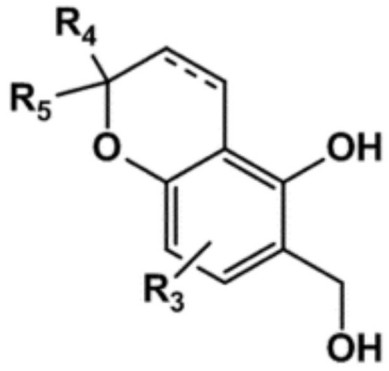
n is from 1 to 3;

when OP is plural in number, they are the same or different; and

the substituent for the substituted alkyl group, substituted alkoxy group, substituted thioalkyl group, substituted allyloxy group, substituted aryloxy group or substituted benzyl group is any one of a benzyloxy group, a halogen atom, a linear or branched $C_1$–$C_5$ alkyl group, a linear or branched $C_1$–$C_5$ alkoxy group, a linear or branched $C_1$–$C_3$ thioalkyl group, a nitro group, and a naphthalene group.

5. A 6-(hydroxymethyl)chromen-5-ol derivative represented by the following Formula 2 or a solvate thereof:

[Formula 2]




wherein

$R_3$ is any one of a hydrogen atom; a $C_1$–$C_3$ alkyl group; a $C_1$–$C_3$ alkoxy group; and a halogen atom; and

$R_4$ and $R_5$ are each independently any one of a hydrogen atom;

and a $C_1$–$C_2$ alkyl group.