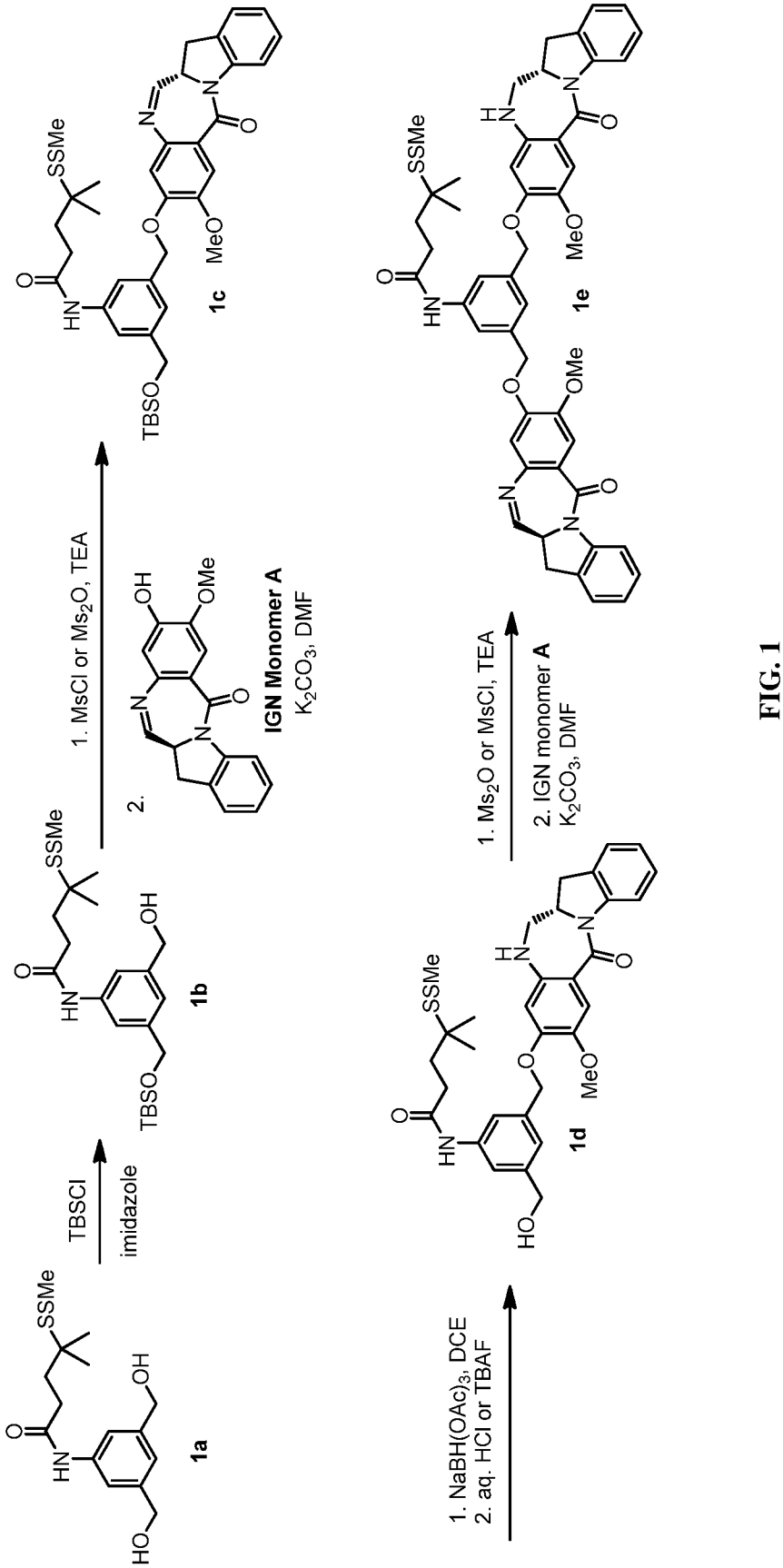
TBSCl
imidazole
1. MsCl or Ms_2O, TEA
2.
IGN Monomer A
K_2CO_3, DMF
1. $NaBH(OAc)_3$, DCE
2. aq. HCl or TBAF
1. Ms_2O or MsCl, TEA
2. IGN monomer A
K_2CO_3, DMF
1a
1b
1c
1d
1e

FIG. 1

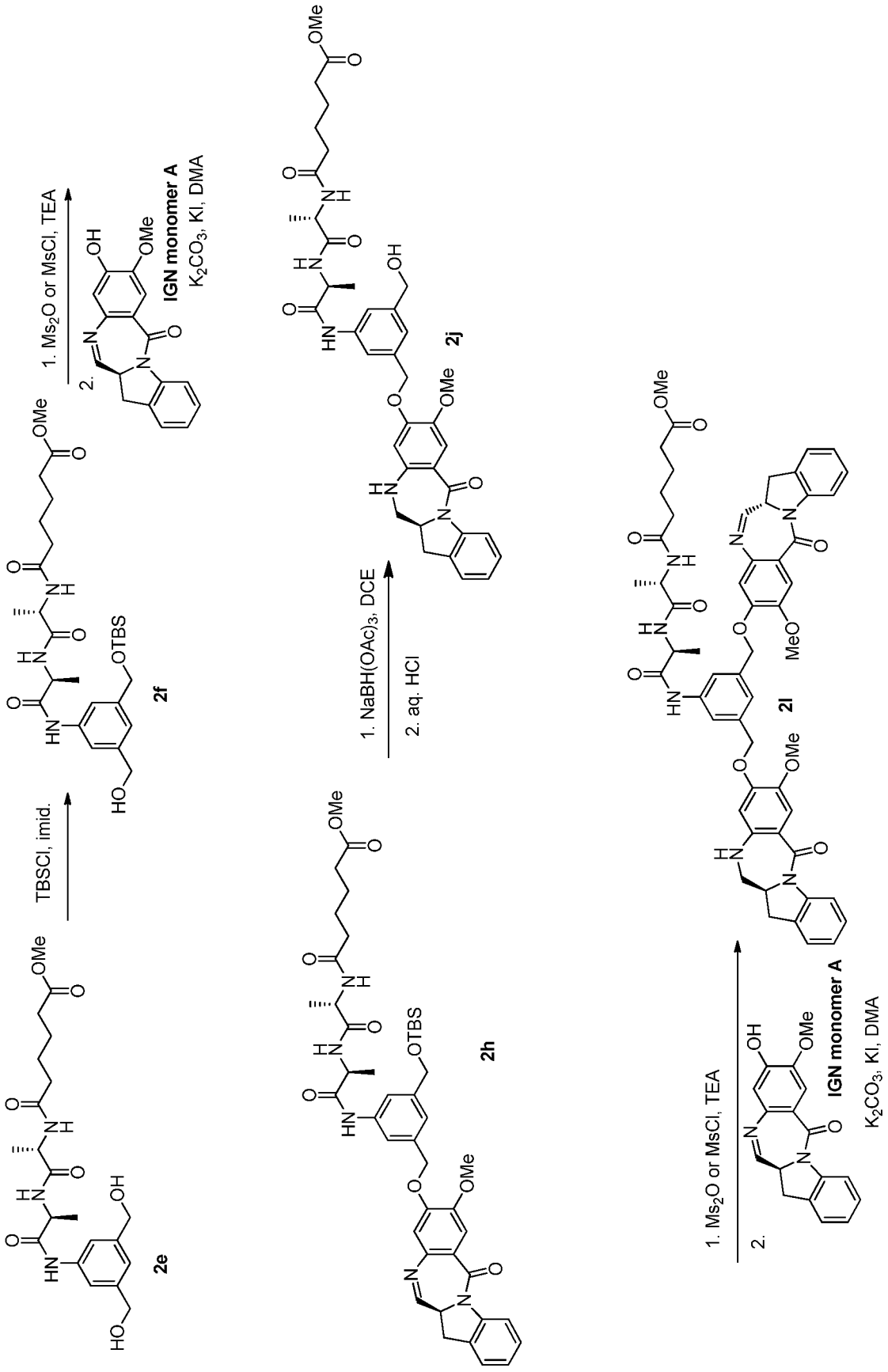
1. Ms2O or MsCl, TEA
2.
IGN monomer A
K2CO3, KI, DMA
TBSCl, imid.
1. NaBH(OAc)3, DCE
2. aq. HCl
1. Ms2O or MsCl, TEA
2.
IGN monomer A
K2CO3, KI, DMA
2e
2f
2h
2j
2l

FIG. 2

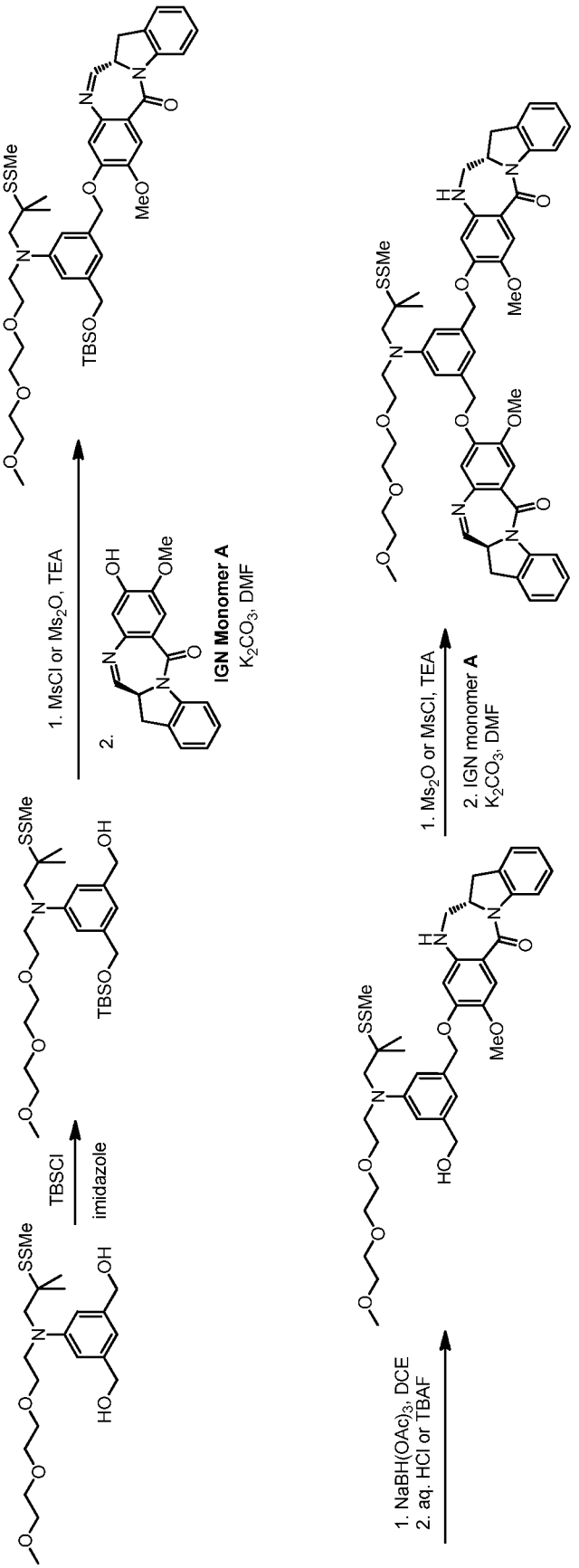
1. NaBH(OAc)3, DCE
2. aq. HCl or TBAF
1. Ms2O or MsCl, TEA
2. IGN monomer A
K2CO3, DMF
TBSCl
imidazole
1. MsCl or Ms2O, TEA
2.
IGN Monomer A
K2CO3, DMF
SSMe
MeO
OMe
OH
HO
TBSO
N
H
O

FIG. 3

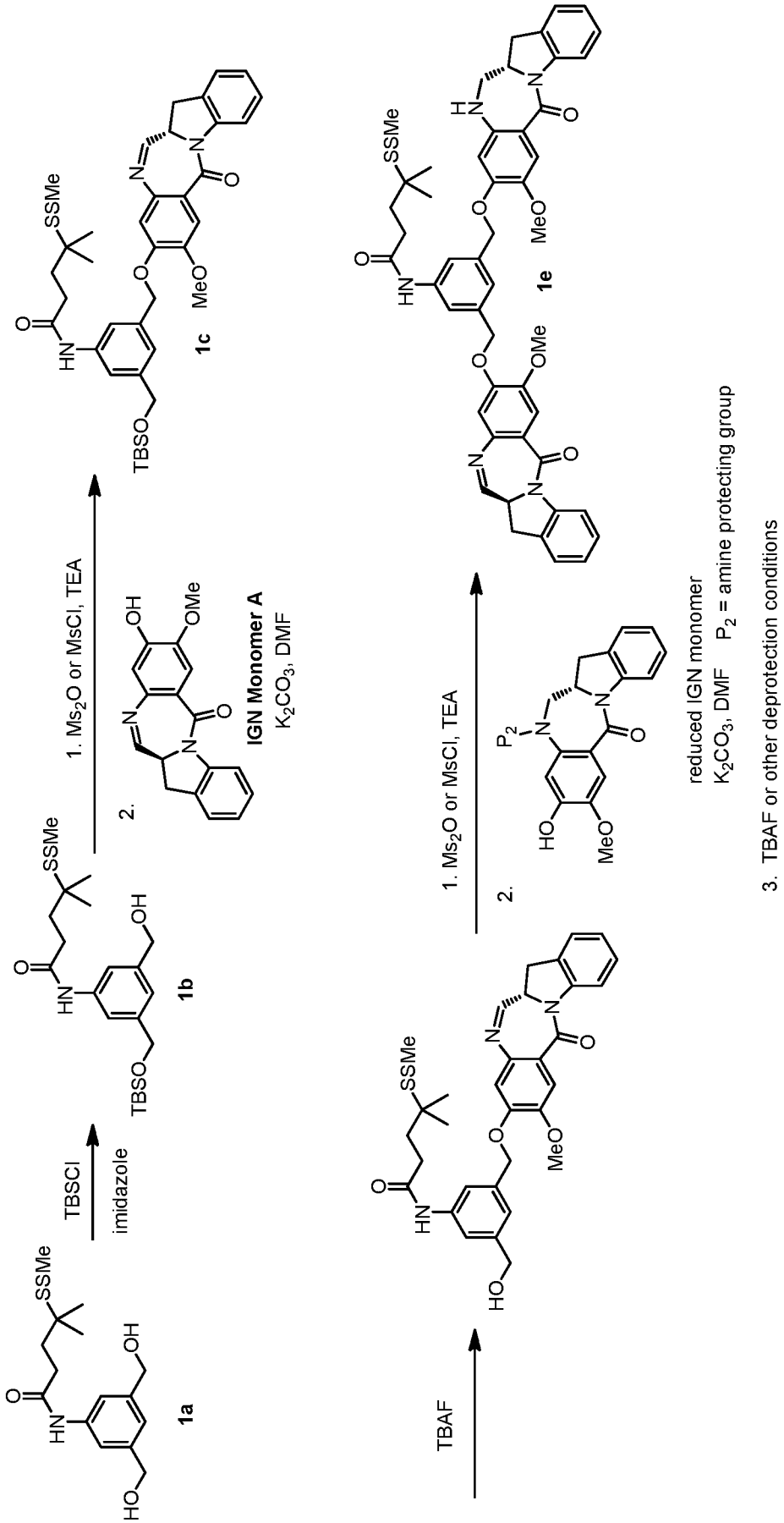
1a
TBSCl
imidazole
1b
1. Ms_2O or MsCl, TEA
2.
IGN Monomer A
K_2CO_3, DMF
1c
1e
1. Ms_2O or MsCl, TEA
2.
reduced IGN monomer
K_2CO_3, DMF P_2 = amine protecting group
TBAF
3. TBAF or other deprotection conditions

FIG. 4

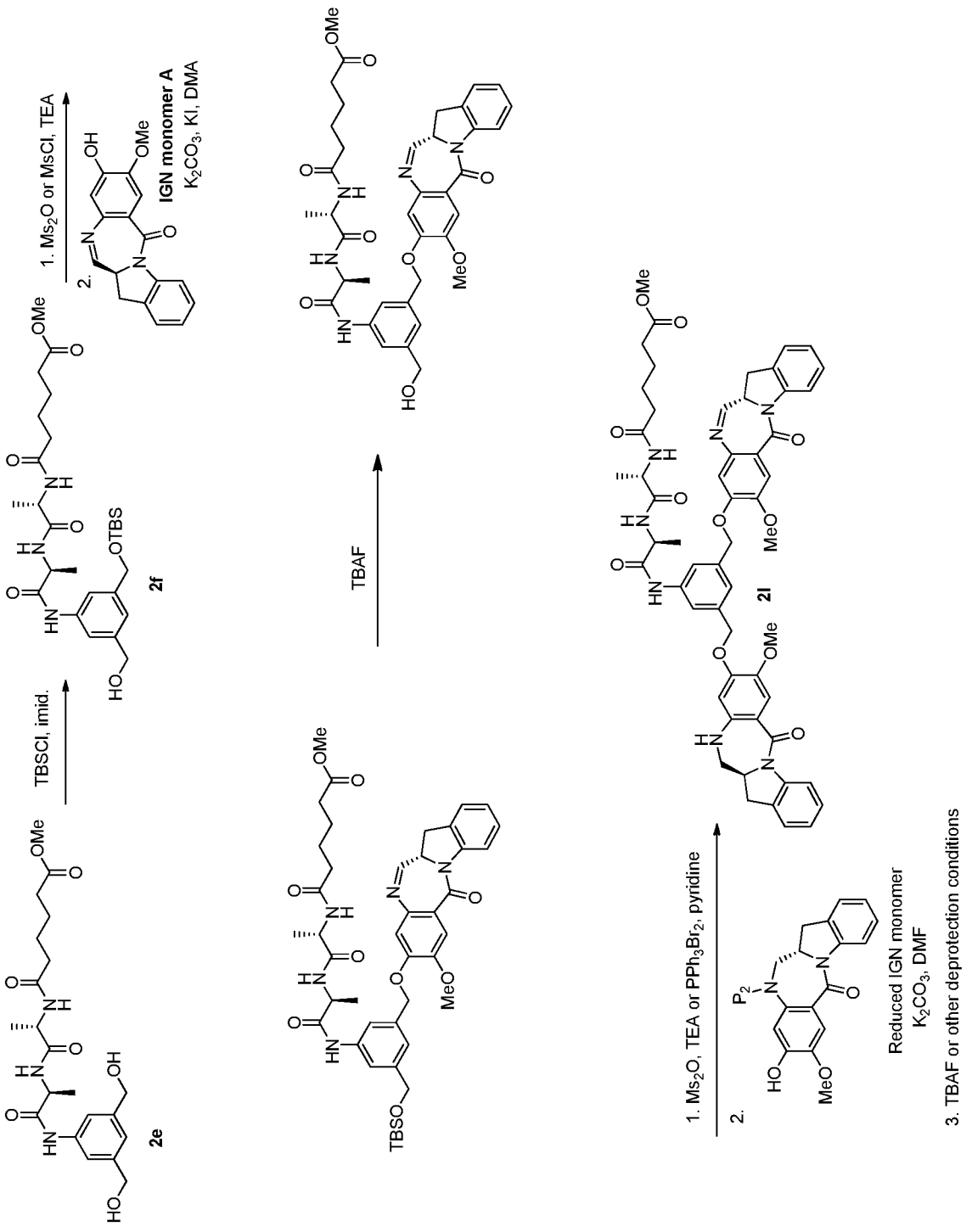
1. Ms2O or MsCl, TEA
2.
IGN monomer A
K2CO3, KI, DMA
TBSCl, imid.
2e
2f
TBAF
1. Ms2O, TEA or PPh3Br2, pyridine
2.
Reduced IGN monomer
K2CO3, DMF
3. TBAF or other deprotection conditions
2l

FIG. 5

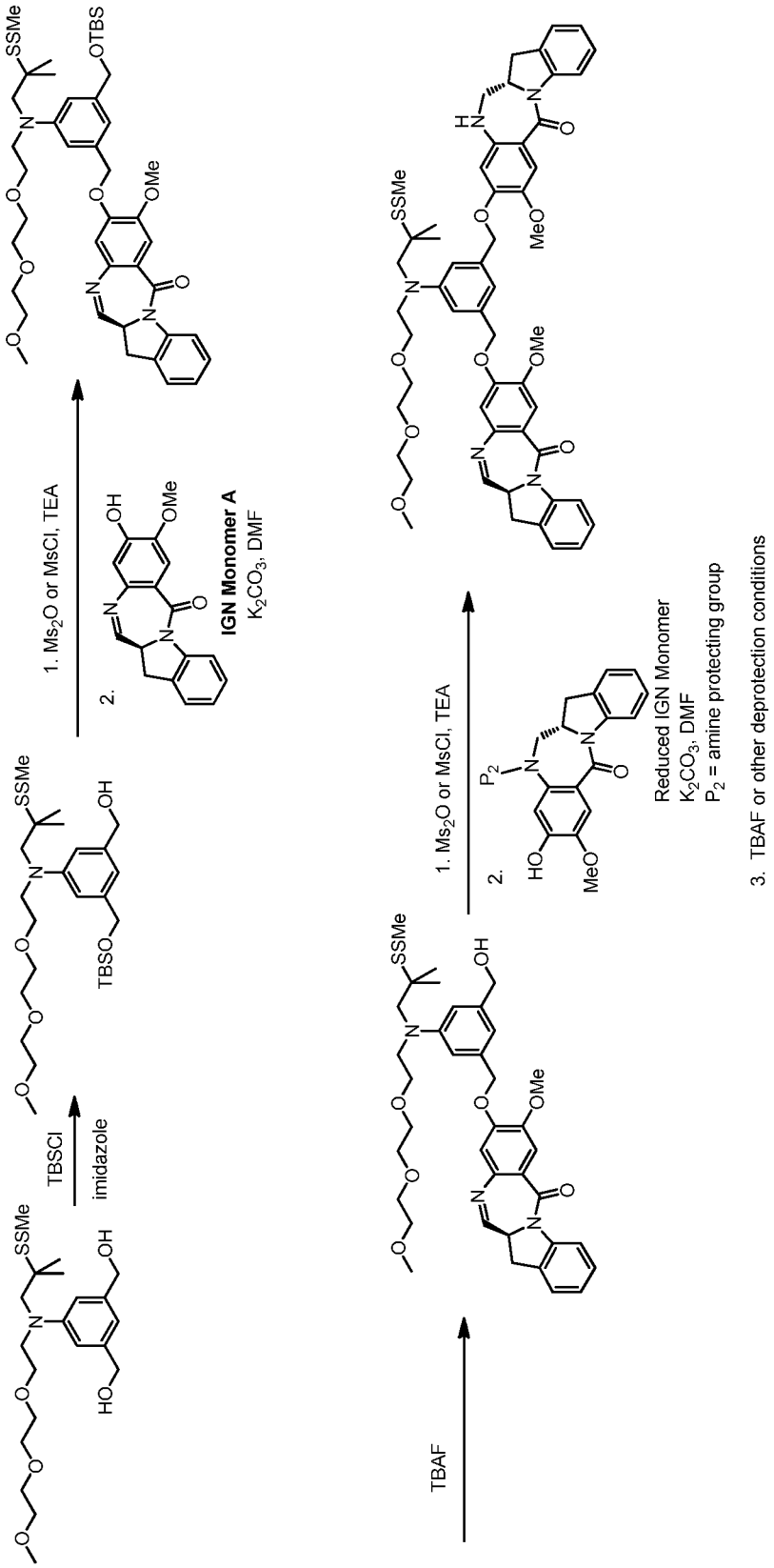
TBSCl
imidazole
1. Ms_2O or MsCl, TEA
2.
IGN Monomer A
K_2CO_3, DMF
TBAF
1. Ms_2O or MsCl, TEA
2.
Reduced IGN Monomer
K_2CO_3, DMF
P_2 = amine protecting group
3. TBAF or other deprotection conditions

FIG. 6

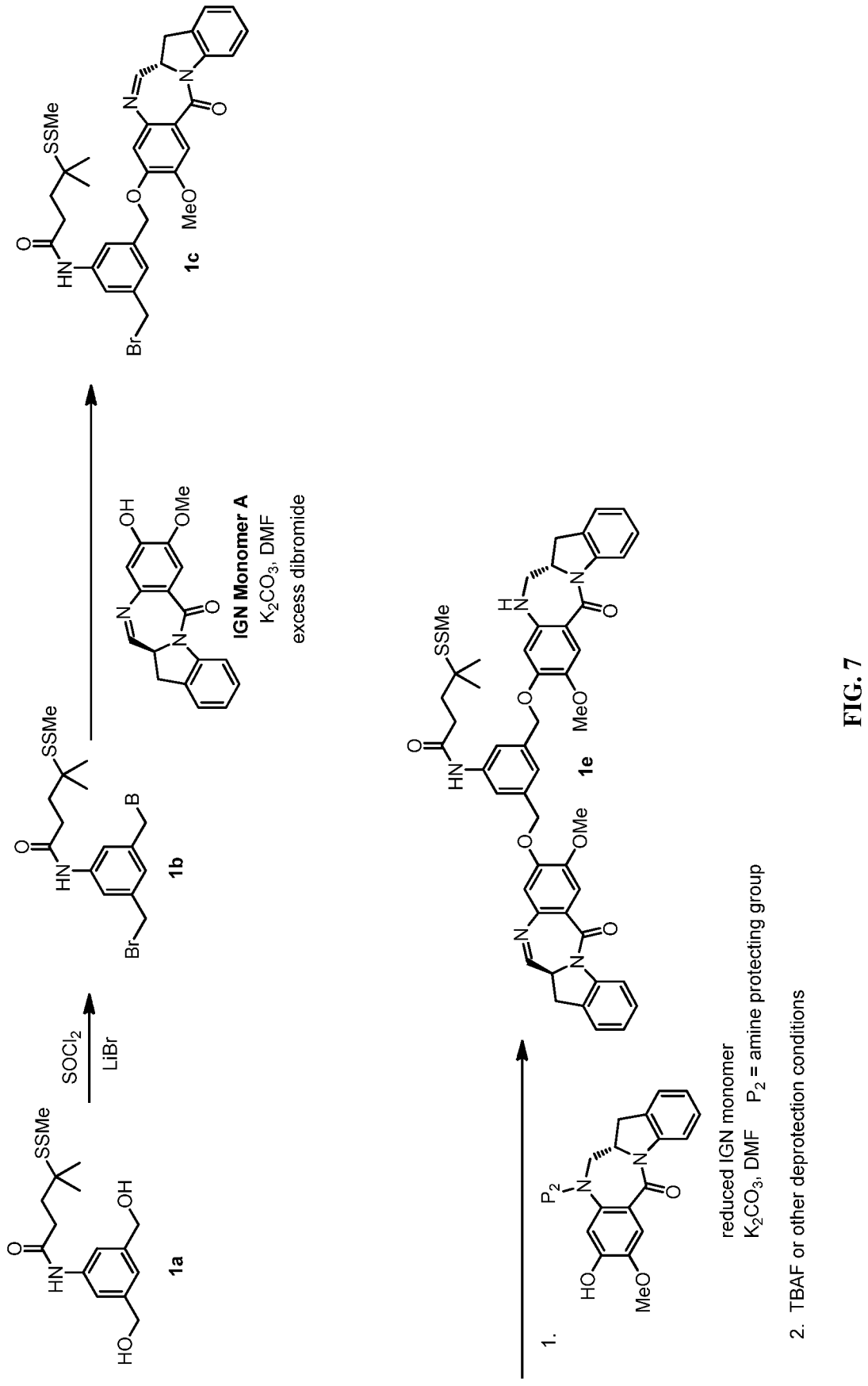
SSMe
HN
O
OH
HO
1a
SOCl2
LiBr
Br
B
1b
OH
OMe
N
O
IGN Monomer A
K2CO3, DMF
excess dibromide
1c
MeO
1. reduced IGN monomer
K2CO3, DMF P2 = amine protecting group
2. TBAF or other deprotection conditions
P2
1e

FIG. 7

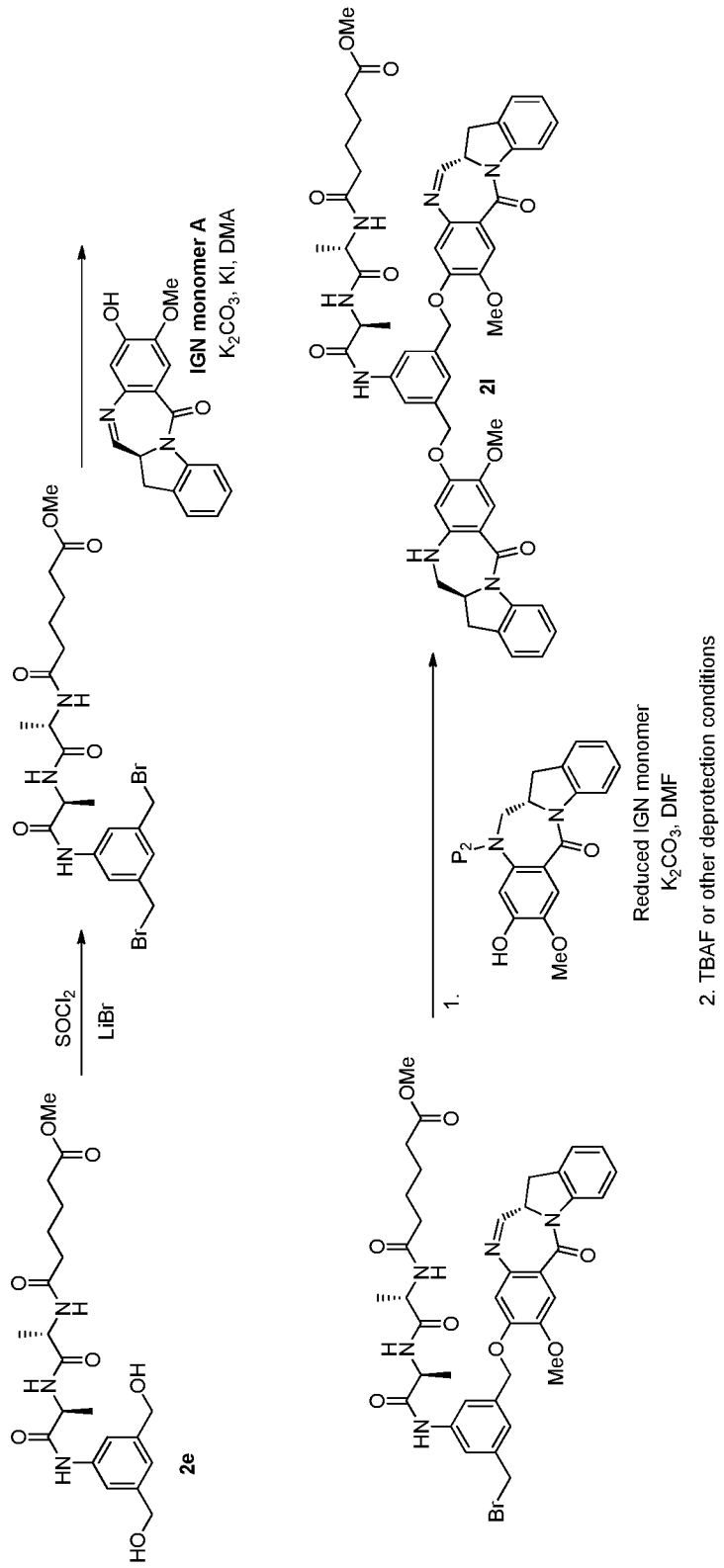
2e
SOCl2
LiBr
IGN monomer A
K2CO3, KI, DMA
2l
1.
Reduced IGN monomer
K2CO3, DMF
2. TBAF or other deprotection conditions

FIG. 8

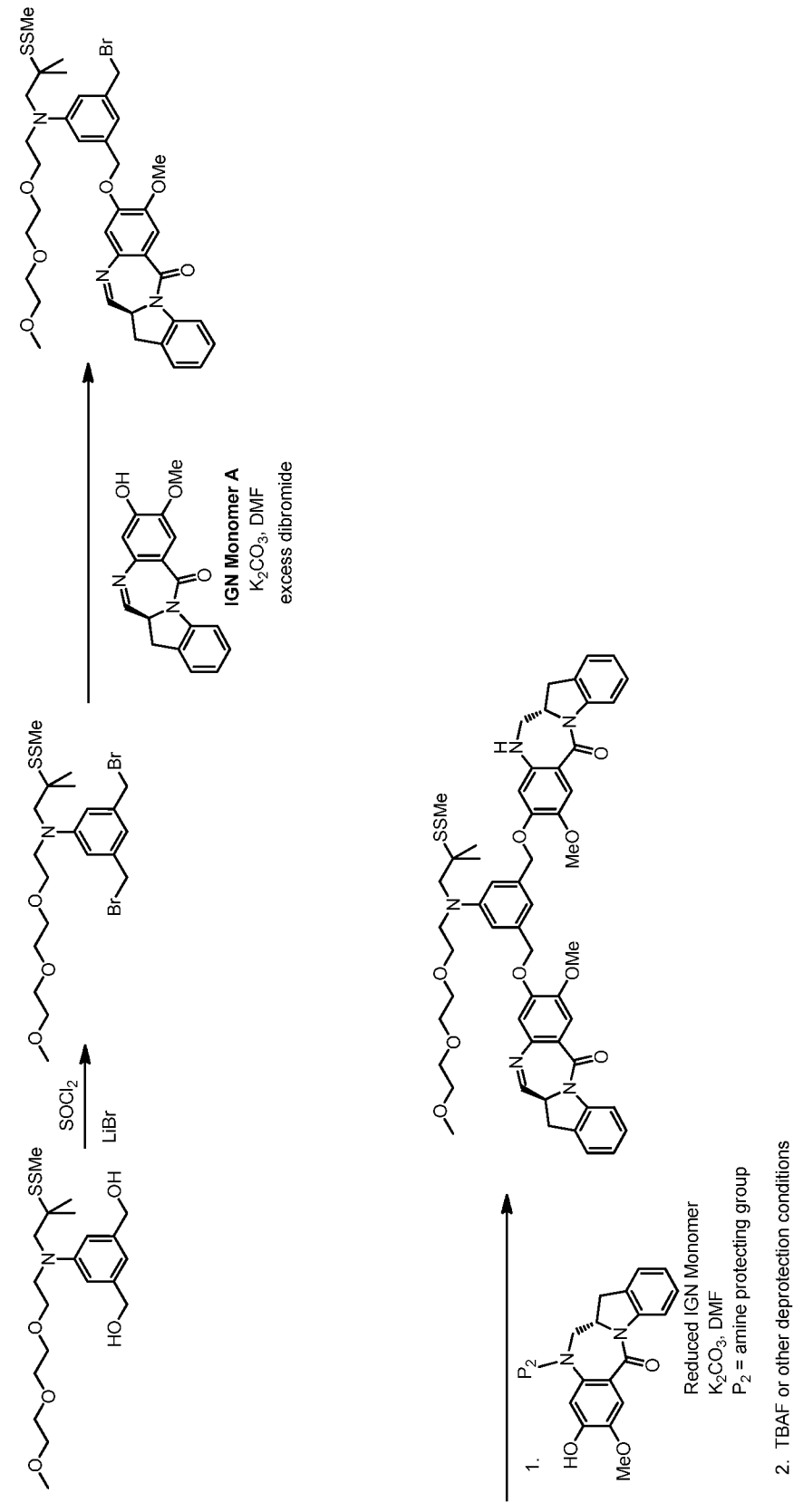
SSMe
OH
HO
SOCl2
LiBr
Br
Br
IGN Monomer A
K2CO3, DMF
excess dibromide
OMe
1.
P2
Reduced IGN Monomer
K2CO3, DMF
P2 = amine protecting group
2. TBAF or other deprotection conditions
MeO

FIG. 9

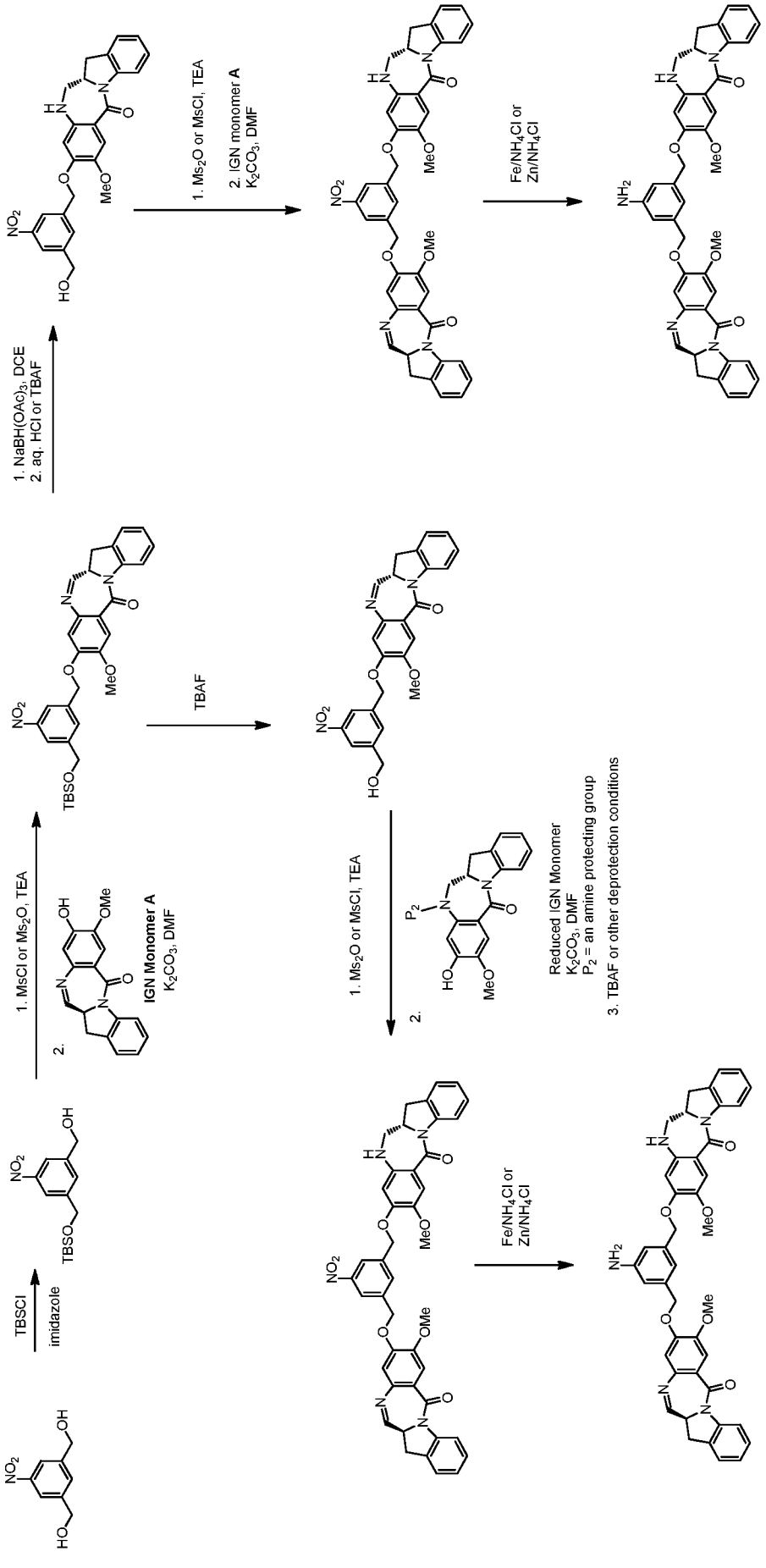
TBSCl
imidazole
1. MsCl or Ms2O, TEA
2.
IGN Monomer A
K2CO3, DMF
TBAF
1. Ms2O or MsCl, TEA
2.
Reduced IGN Monomer
K2CO3, DMF
P2 = an amine protecting group
3. TBAF or other deprotection conditions
Fe/NH4Cl or
Zn/NH4Cl
1. NaBH(OAc)3, DCE
2. aq. HCl or TBAF
1. Ms2O or MsCl, TEA
2. IGN monomer A
K2CO3, DMF
Fe/NH4Cl or
Zn/NH4Cl

FIG. 10

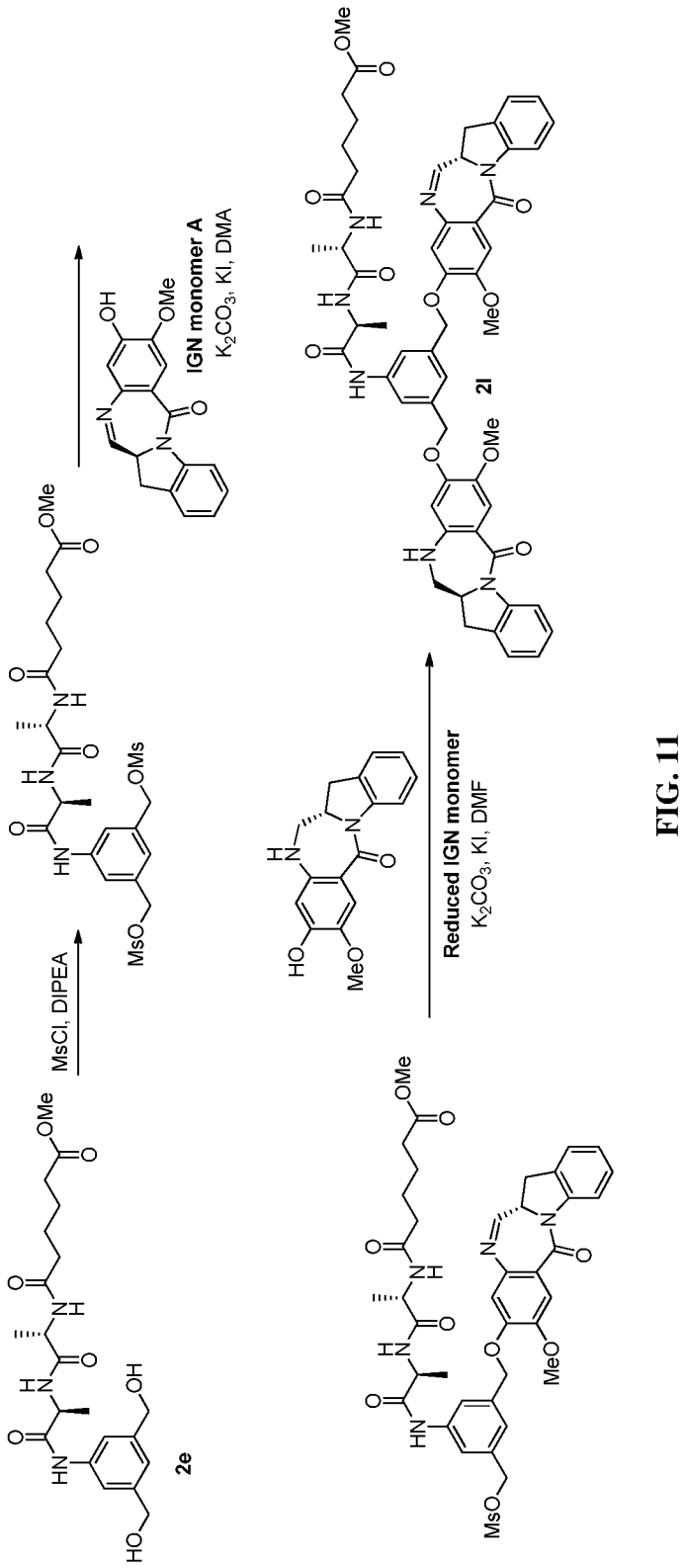
MsCl, DIPEA
IGN monomer A
K_2CO_3, KI, DMA
Reduced IGN monomer
K_2CO_3, KI, DMF
2e
2l

FIG. 11

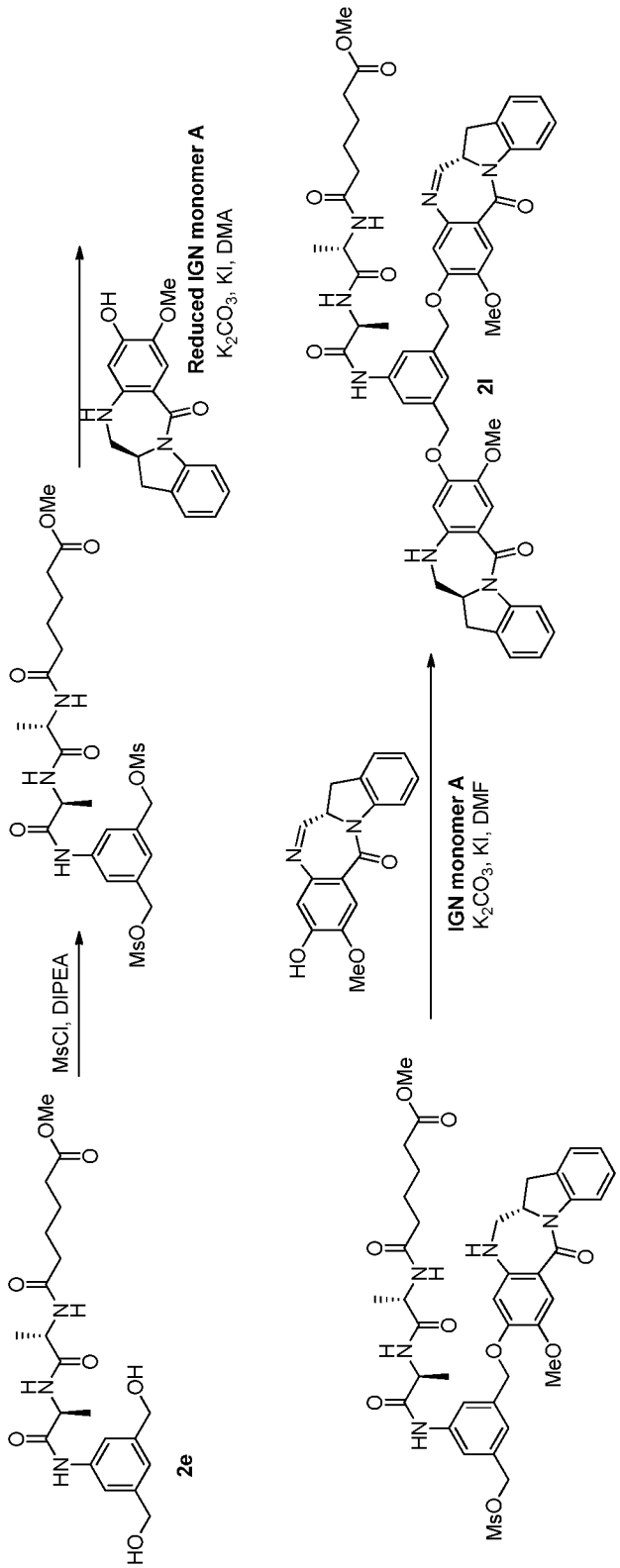
MsCl, DIPEA
Reduced IGN monomer A
K_2CO_3, KI, DMA
IGN monomer A
K_2CO_3, KI, DMF
2e
2l

FIG. 12

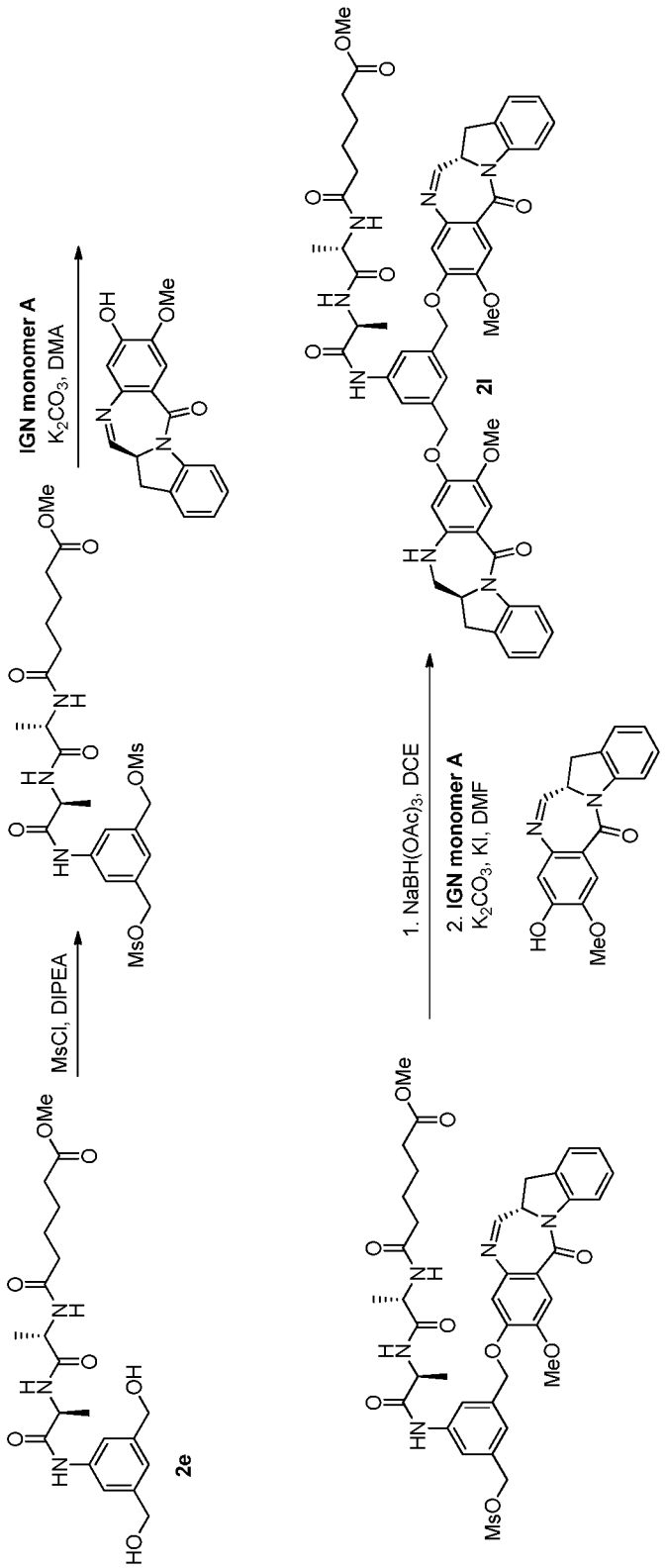
IGN monomer A
K_2CO_3, DMA
MsCl, DIPEA
2e
1. $NaBH(OAc)_3$, DCE
2. IGN monomer A
K_2CO_3, KI, DMF
2l

FIG. 13

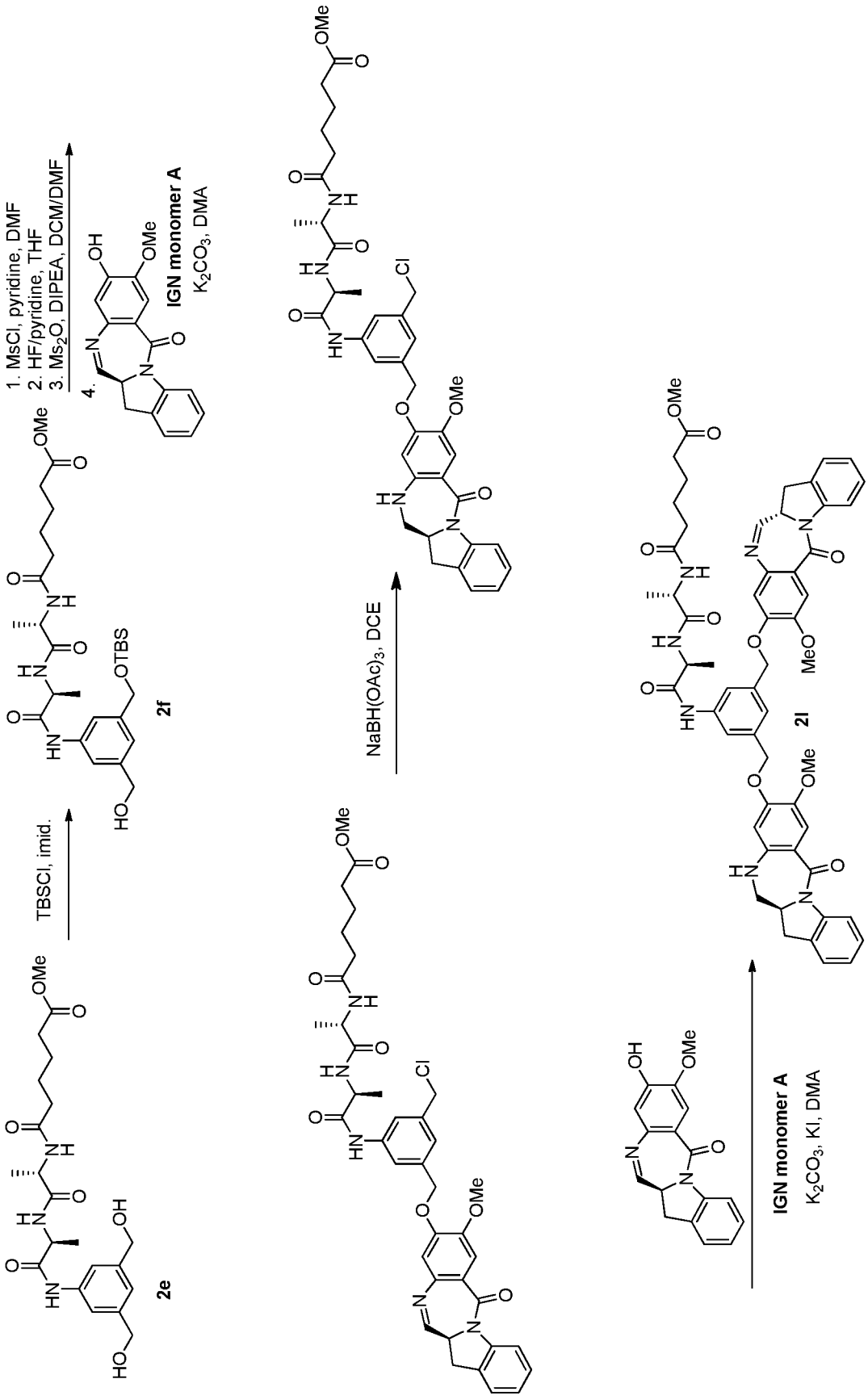
1. MsCl, pyridine, DMF
2. HF/pyridine, THF
3. Ms2O, DIPEA, DCM/DMF
TBSCl, imid.
IGN monomer A
K2CO3, DMA
NaBH(OAc)3, DCE
IGN monomer A
K2CO3, KI, DMA
2e
2f
4
2l

FIG. 14

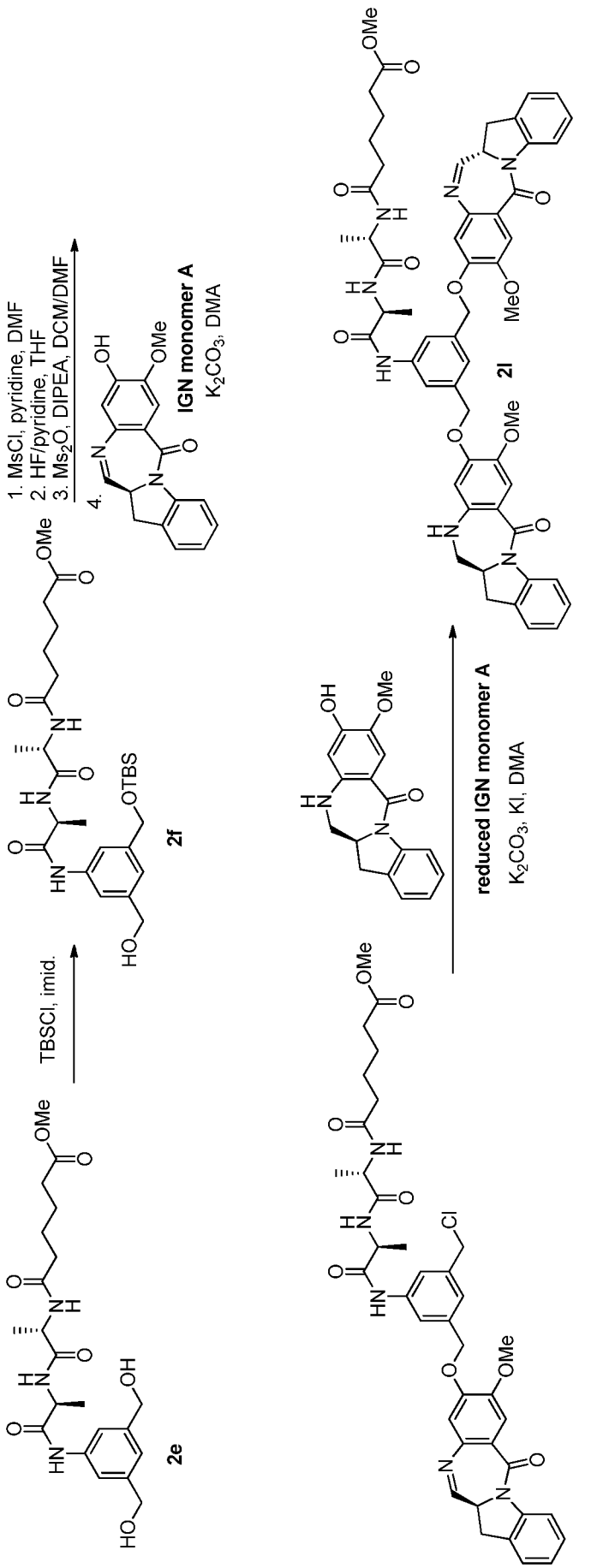
1. MsCl, pyridine, DMF
2. HF/pyridine, THF
3. Ms2O, DIPEA, DCM/DMF
4.
IGN monomer A
K2CO3, DMA
TBSCl, imid.
reduced IGN monomer A
K2CO3, KI, DMA
2e
2f
2l

FIG. 15

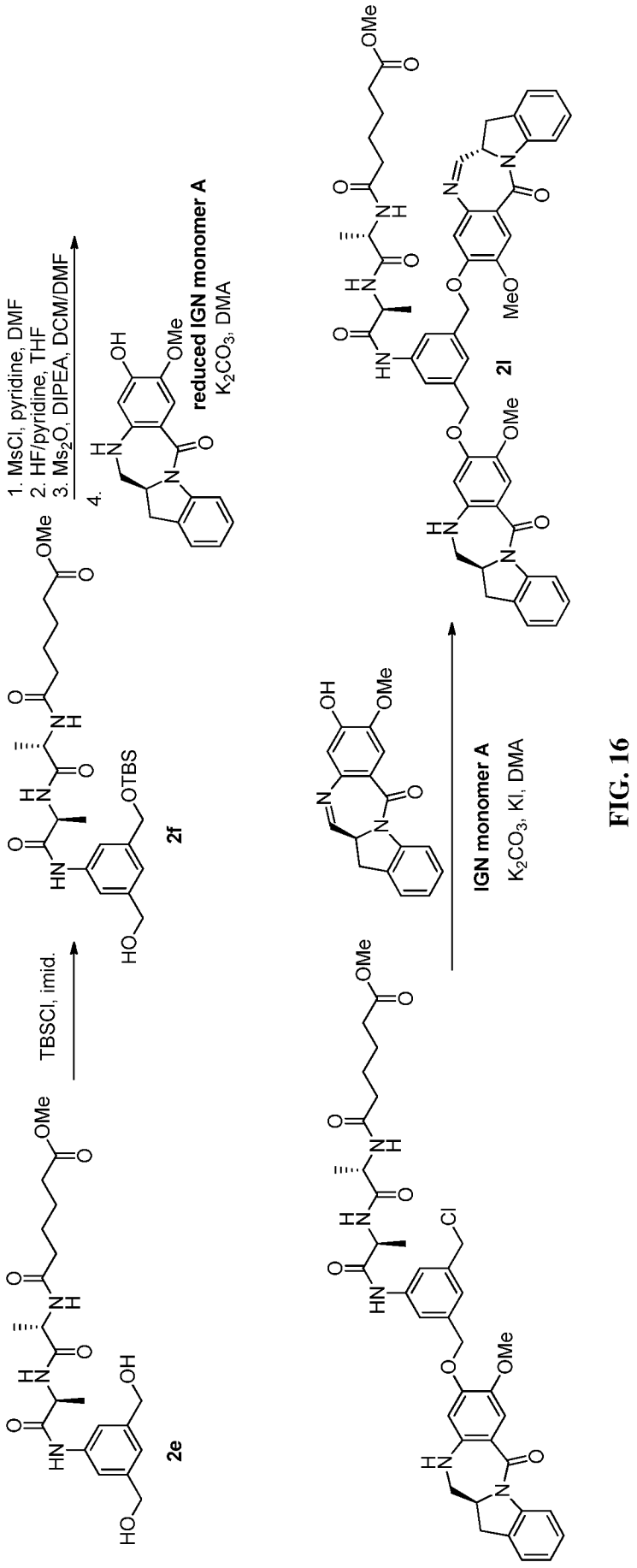
TBSCl, imid.
1. MsCl, pyridine, DMF
2. HF/pyridine, THF
3. Ms_2O, DIPEA, DCM/DMF
4. reduced IGN monomer A
K_2CO_3, DMA
IGN monomer A
K_2CO_3, KI, DMA
2e
2f
2l

FIG. 16

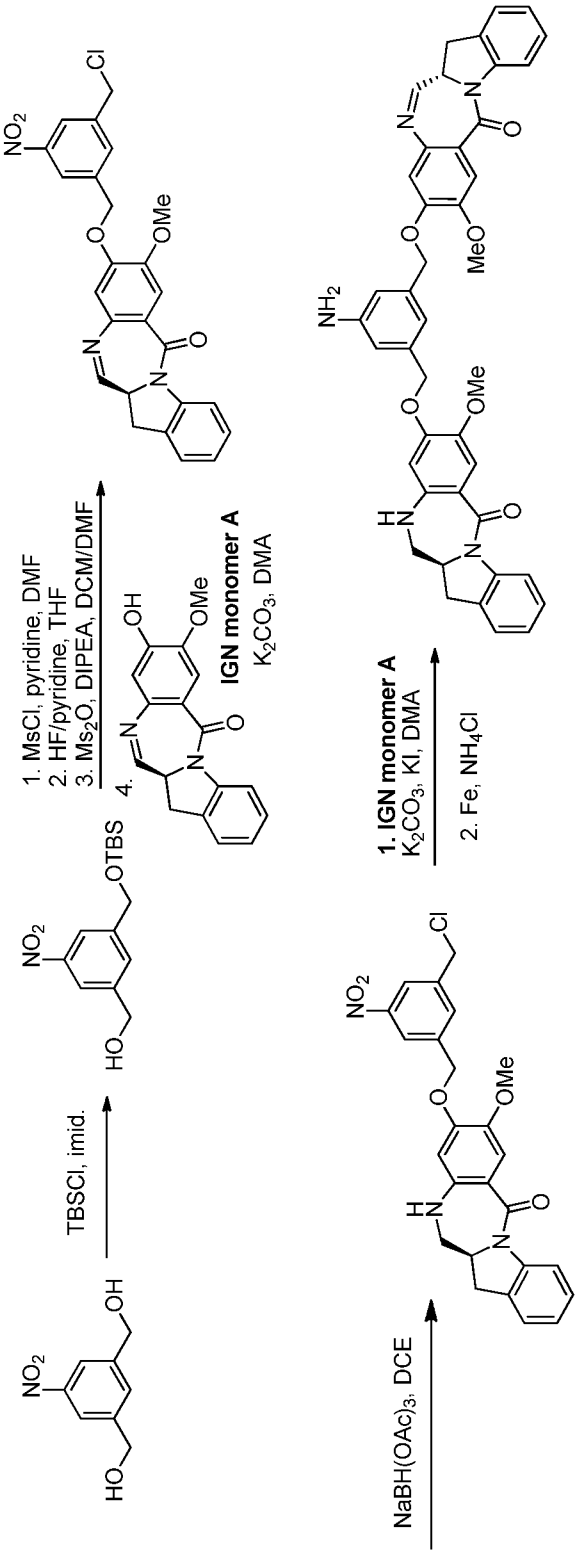
NO2
OH
HO
TBSCl, imid.
OTBS
1. MsCl, pyridine, DMF
2. HF/pyridine, THF
3. Ms2O, DIPEA, DCM/DMF
4.
IGN monomer A
K2CO3, DMA
Cl
OMe
NaBH(OAc)3, DCE
1. IGN monomer A
K2CO3, KI, DMA
2. Fe, NH4Cl
NH2
MeO

FIG. 17

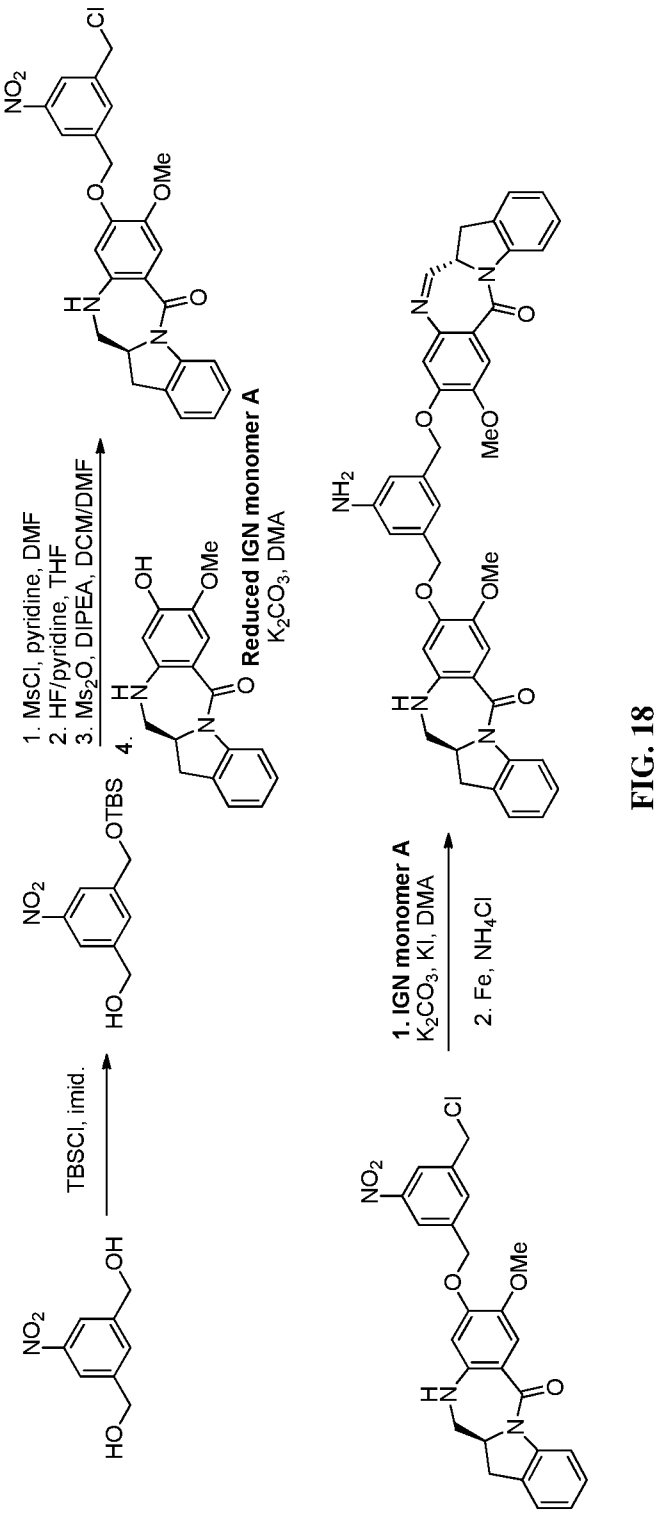
TBSCl, imid.
1. MsCl, pyridine, DMF
2. HF/pyridine, THF
3. Ms2O, DIPEA, DCM/DMF
4. Reduced IGN monomer A
K2CO3, DMA
1. IGN monomer A
K2CO3, KI, DMA
2. Fe, NH4Cl

FIG. 18

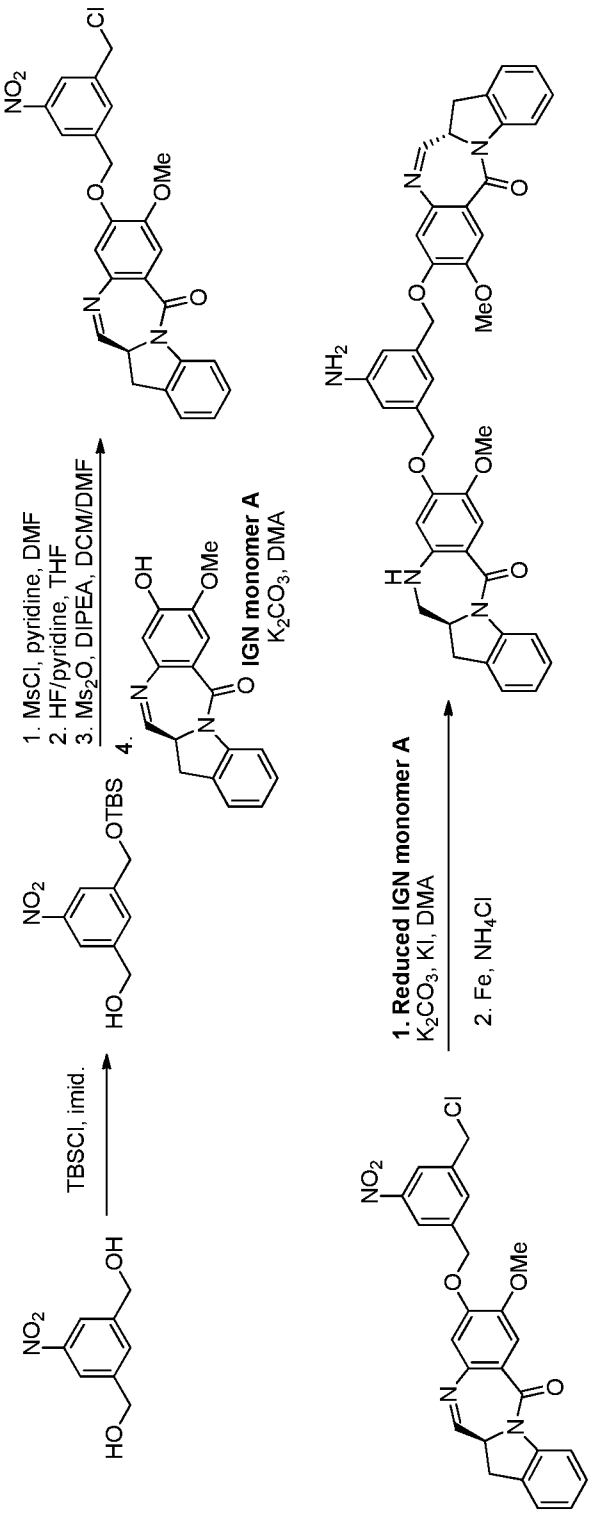
TBSCl, imid.
1. MsCl, pyridine, DMF
2. HF/pyridine, THF
3. Ms_2O, DIPEA, DCM/DMF
4. IGN monomer A
K_2CO_3, DMA
1. Reduced IGN monomer A
K_2CO_3, KI, DMA
2. Fe, NH_4Cl

FIG. 19