FIG. 1A

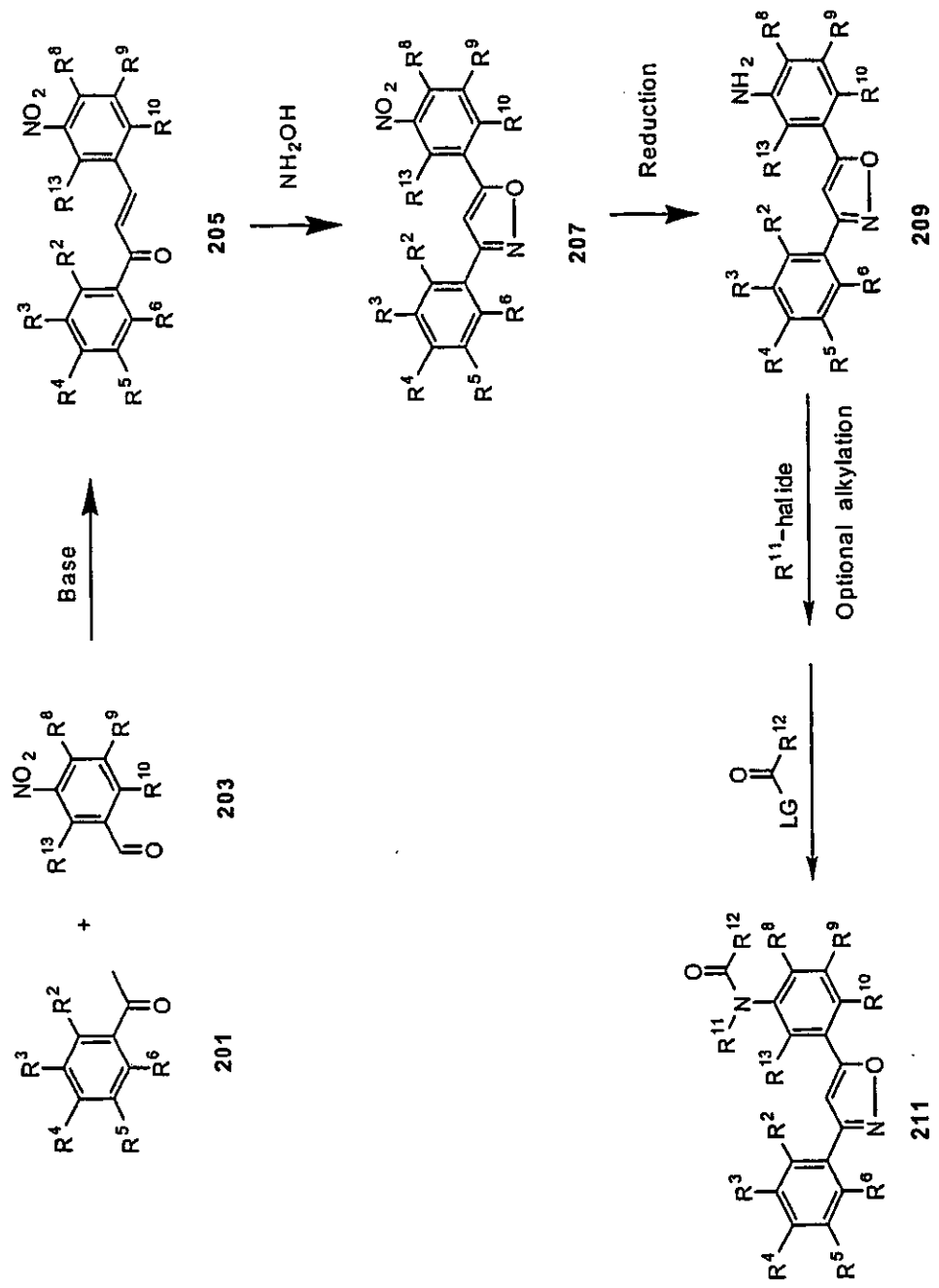

Base
NH2OH
Reduction
R11-halide
Optional alkylation
201
203
205
207
209
211

FIG. 1B

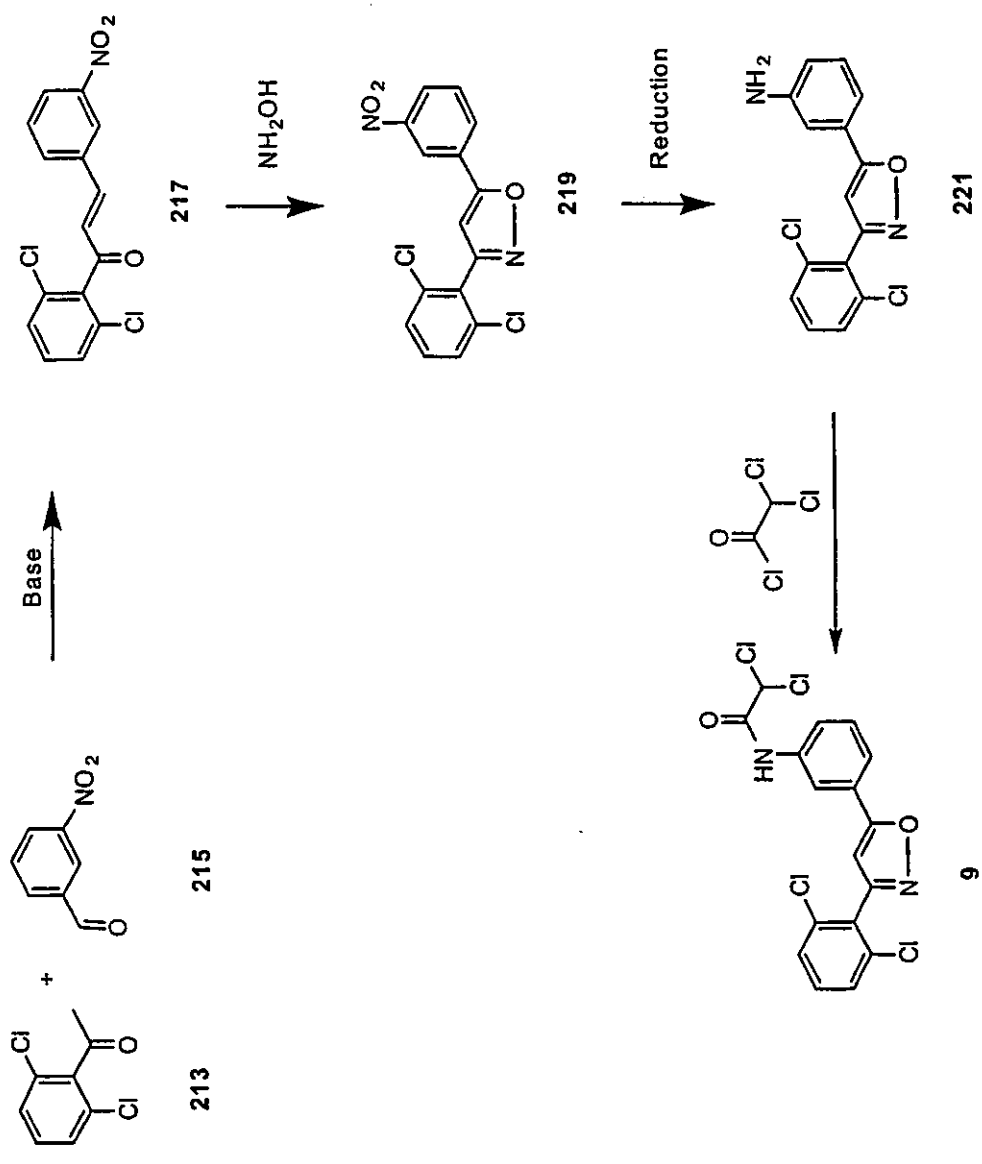

NO2
Cl
O
Cl
217
NH2OH
NO2
O
N
Cl
Cl
219
Reduction
NH2
O
N
Cl
Cl
221
Base
NO2
O
215
+
Cl
O
Cl
213
Cl
Cl
O
HN
O
N
Cl
Cl
9

FIG. 2A

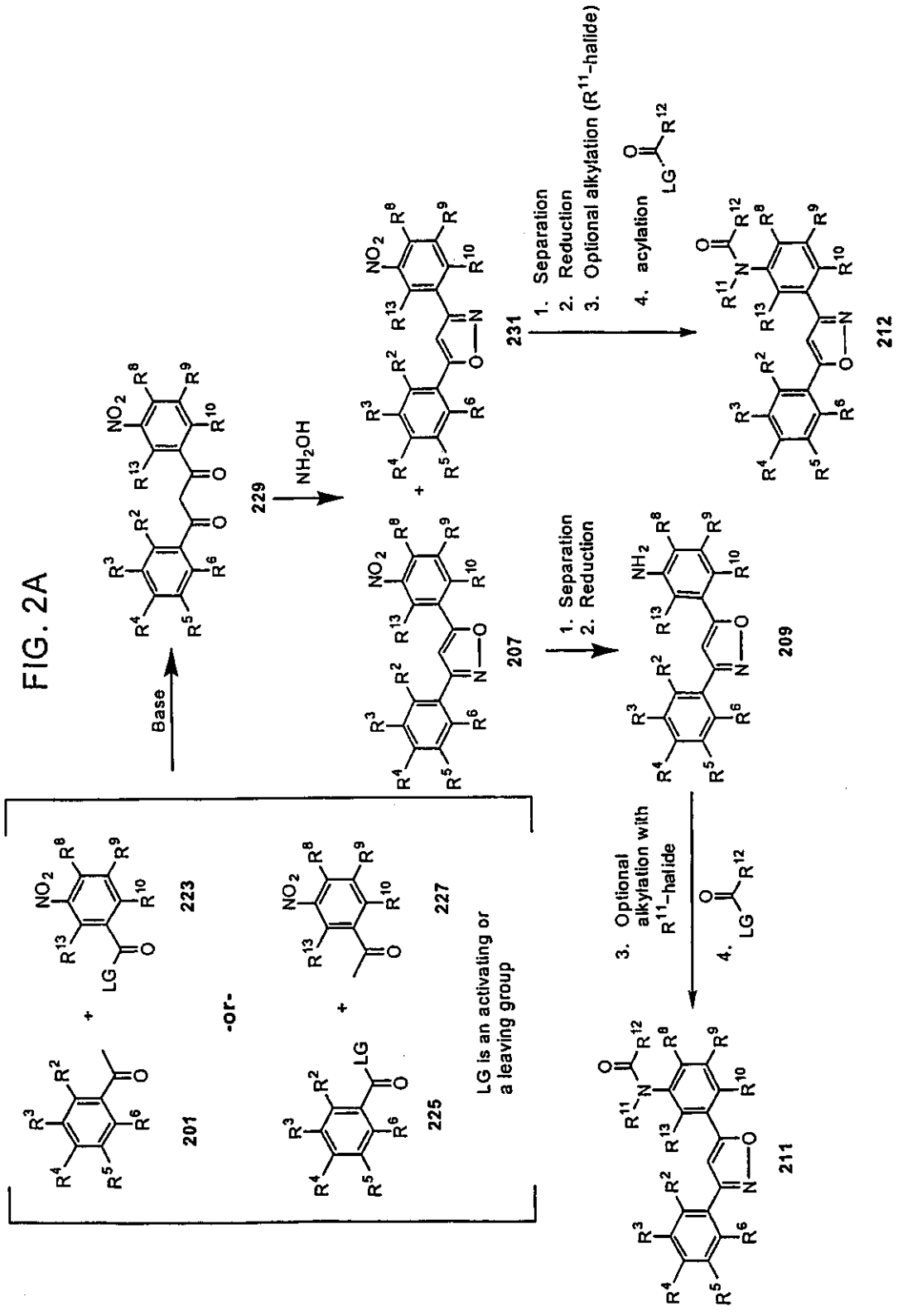

Base
229
NH_2OH
231
1. Separation
2. Reduction
3. Optional alkylation (R^{11}-halide)
4. acylation
212
207
1. Separation
2. Reduction
209
3. Optional alkylation with R^{11}-halide
4.
211
223
201
-or-
227
225
LG is an activating or a leaving group

FIG. 2B

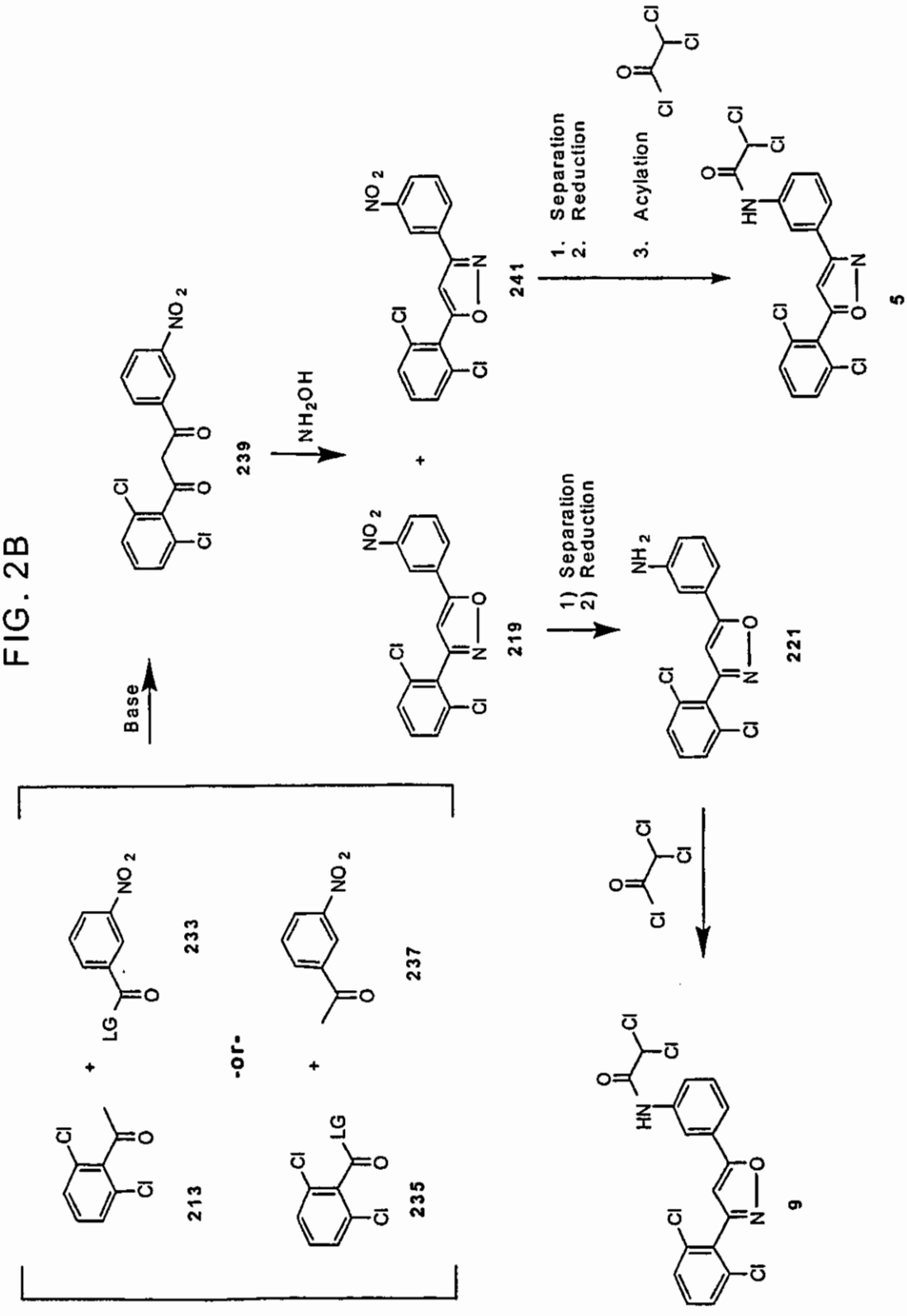
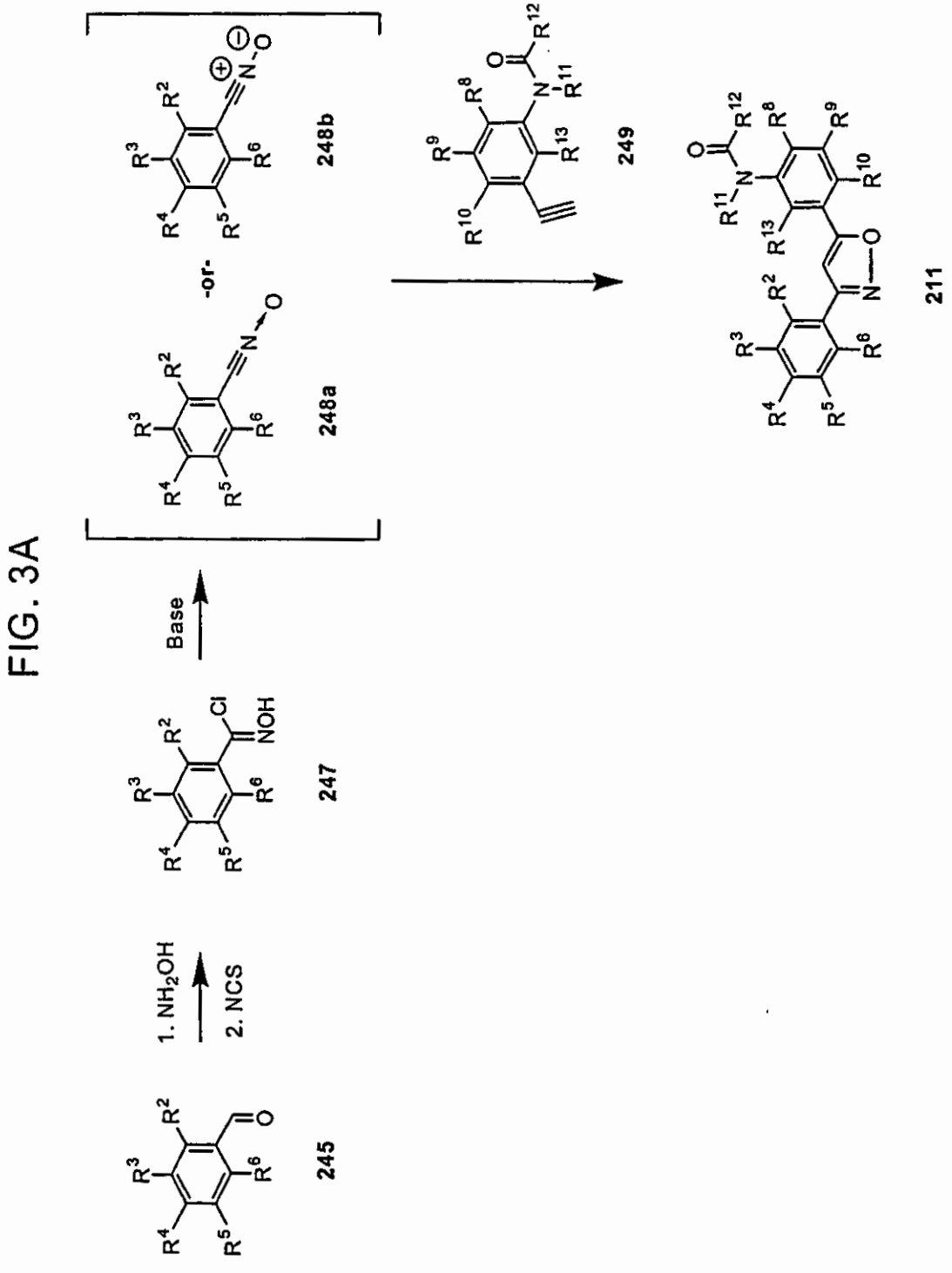

Base
239
NH2OH
241
1. Separation
2. Reduction
3. Acylation
5
219
1) Separation
2) Reduction
221
-or-
233
237
213
235
9

FIG. 3A



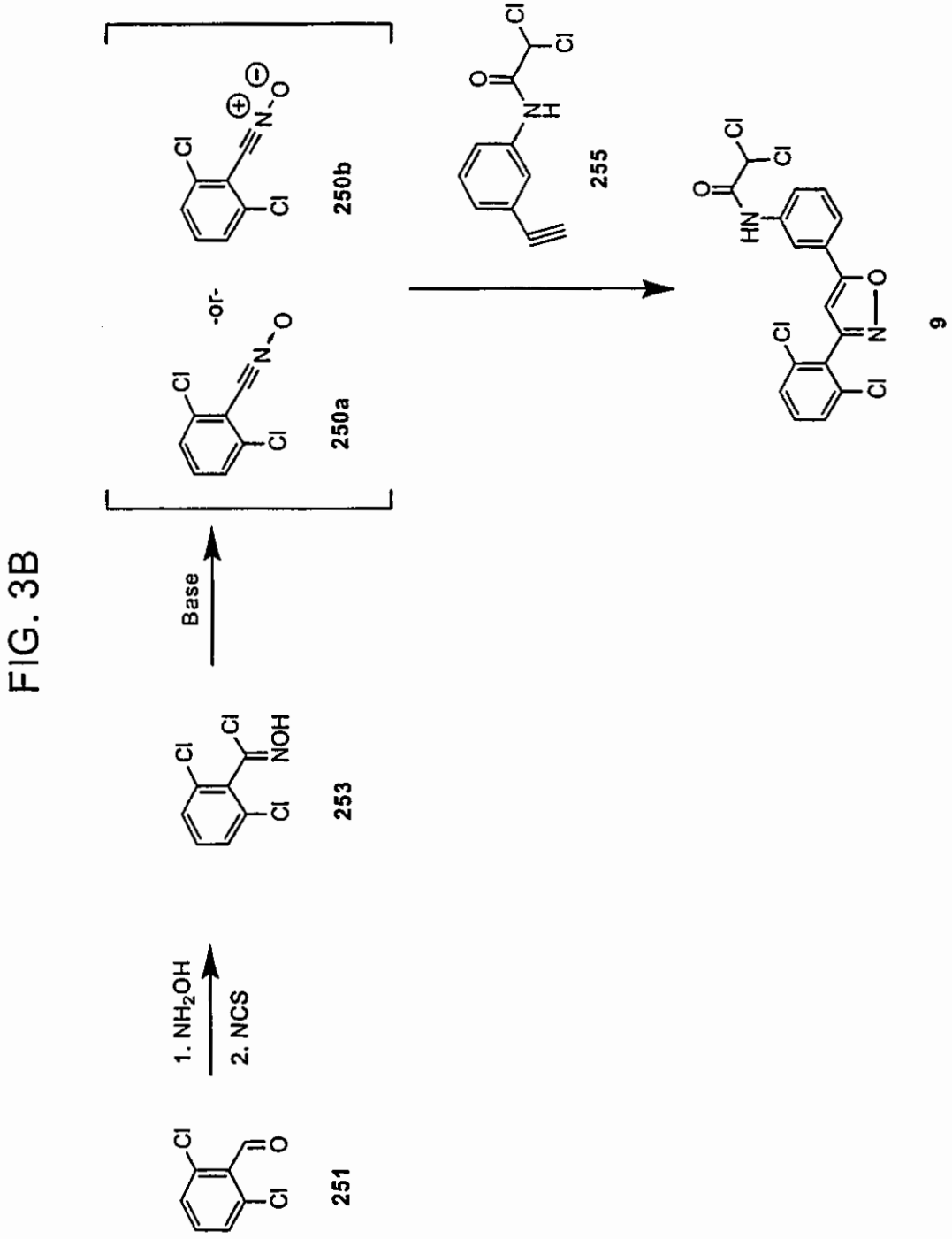


FIG. 3B

FIG. 3C

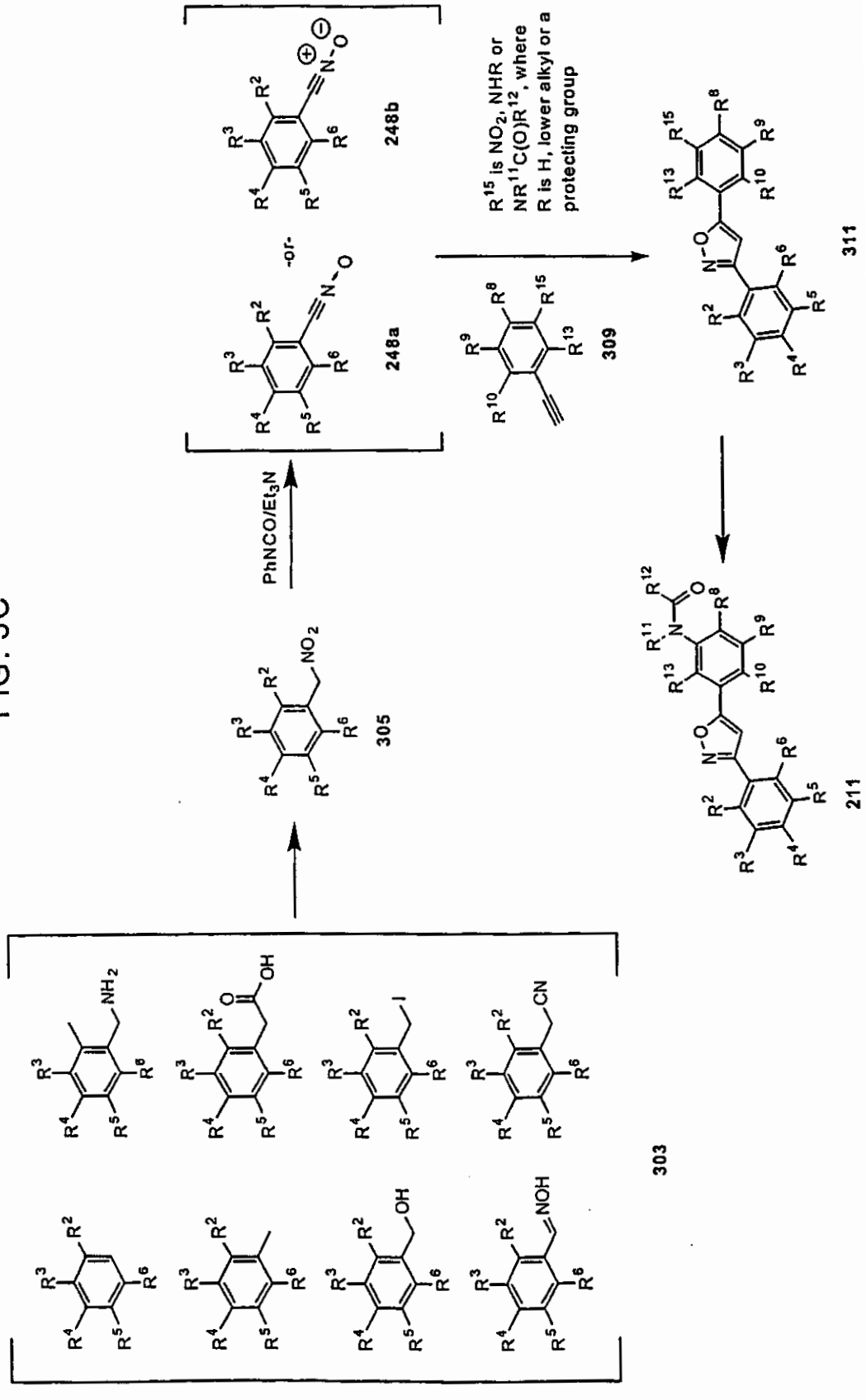

303
305
PhNCO/Et3N
248b
-or-
248a
R15 is NO2, NHR or NR11C(O)R12, where R is H, lower alkyl or a protecting group
309
311
211

FIG. 4A

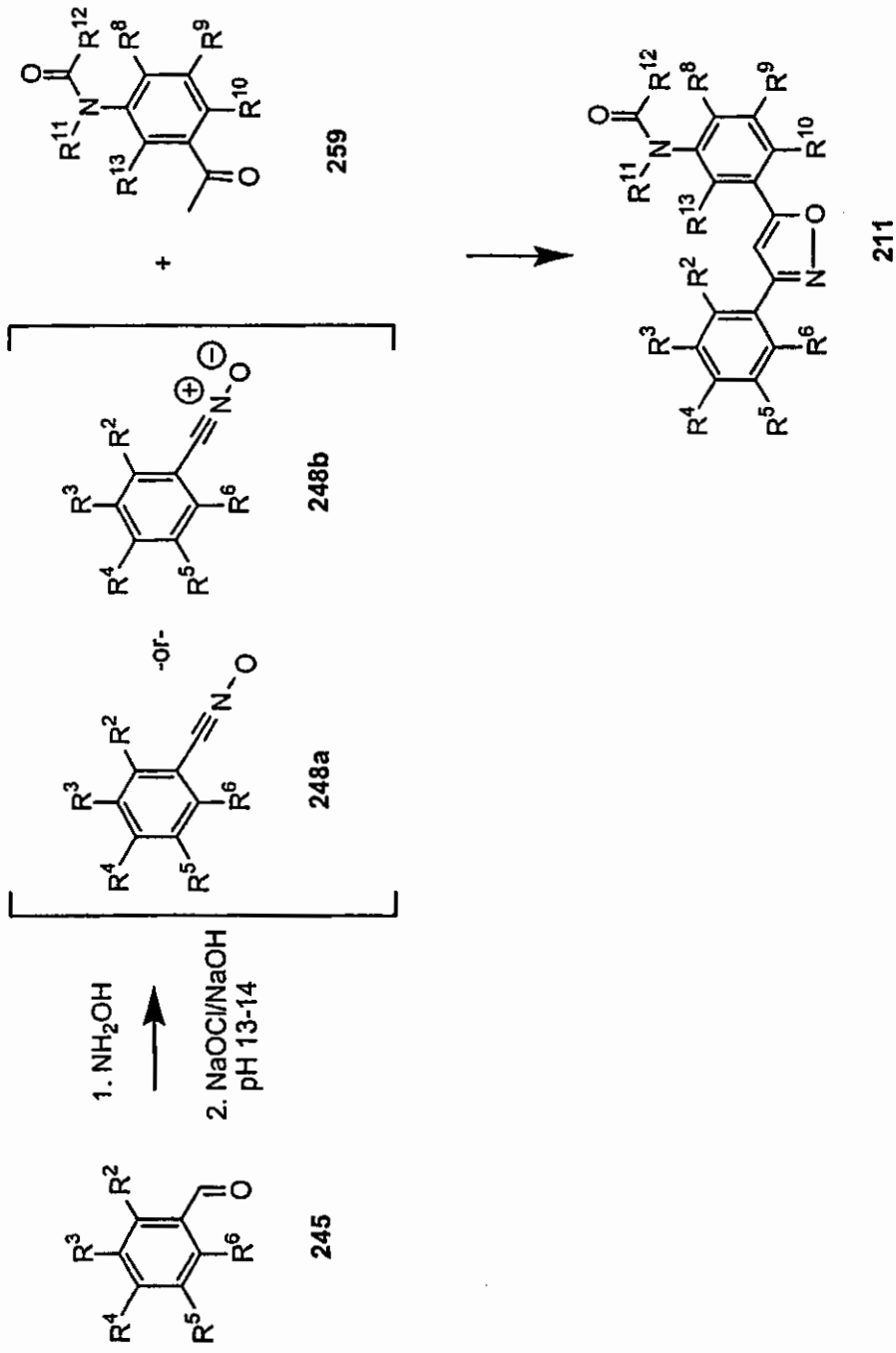


FIG. 4B

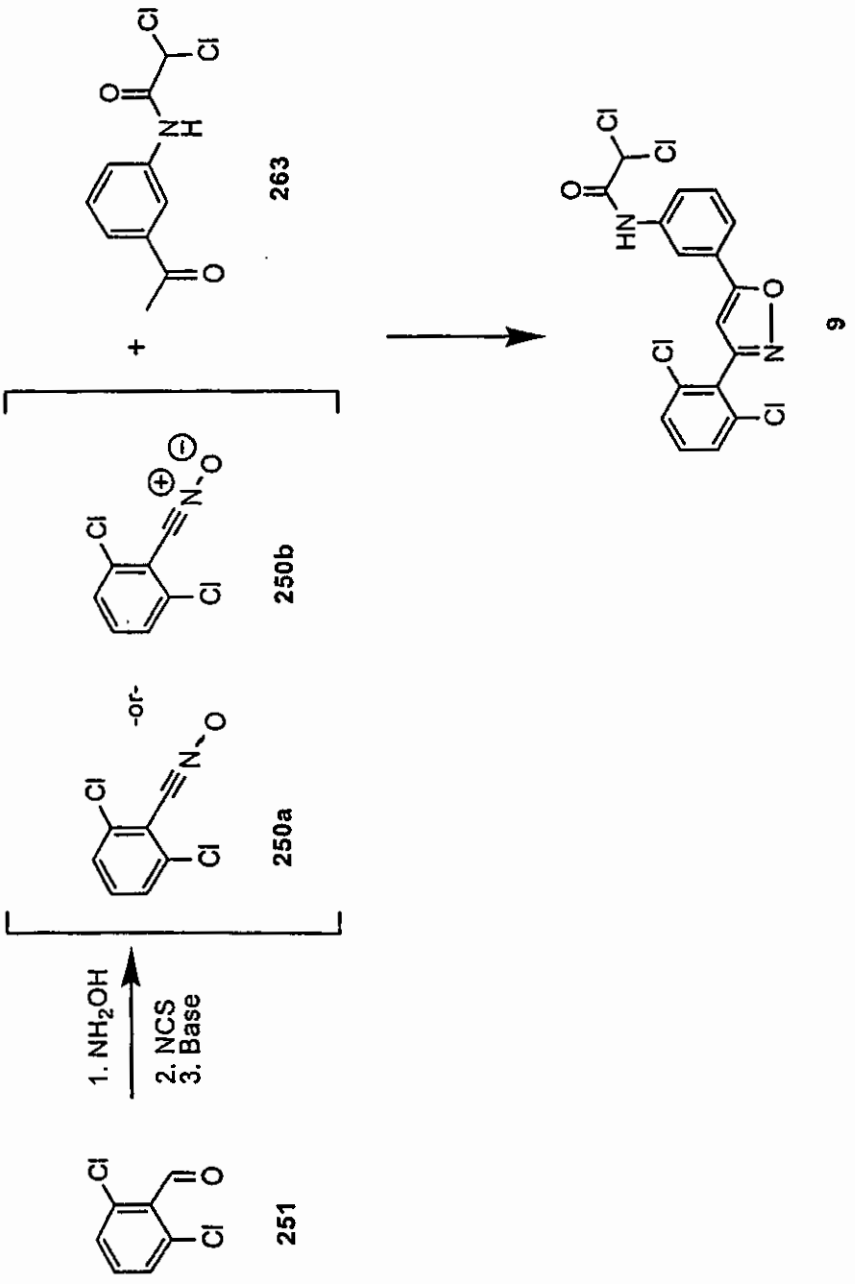


FIG. 4C

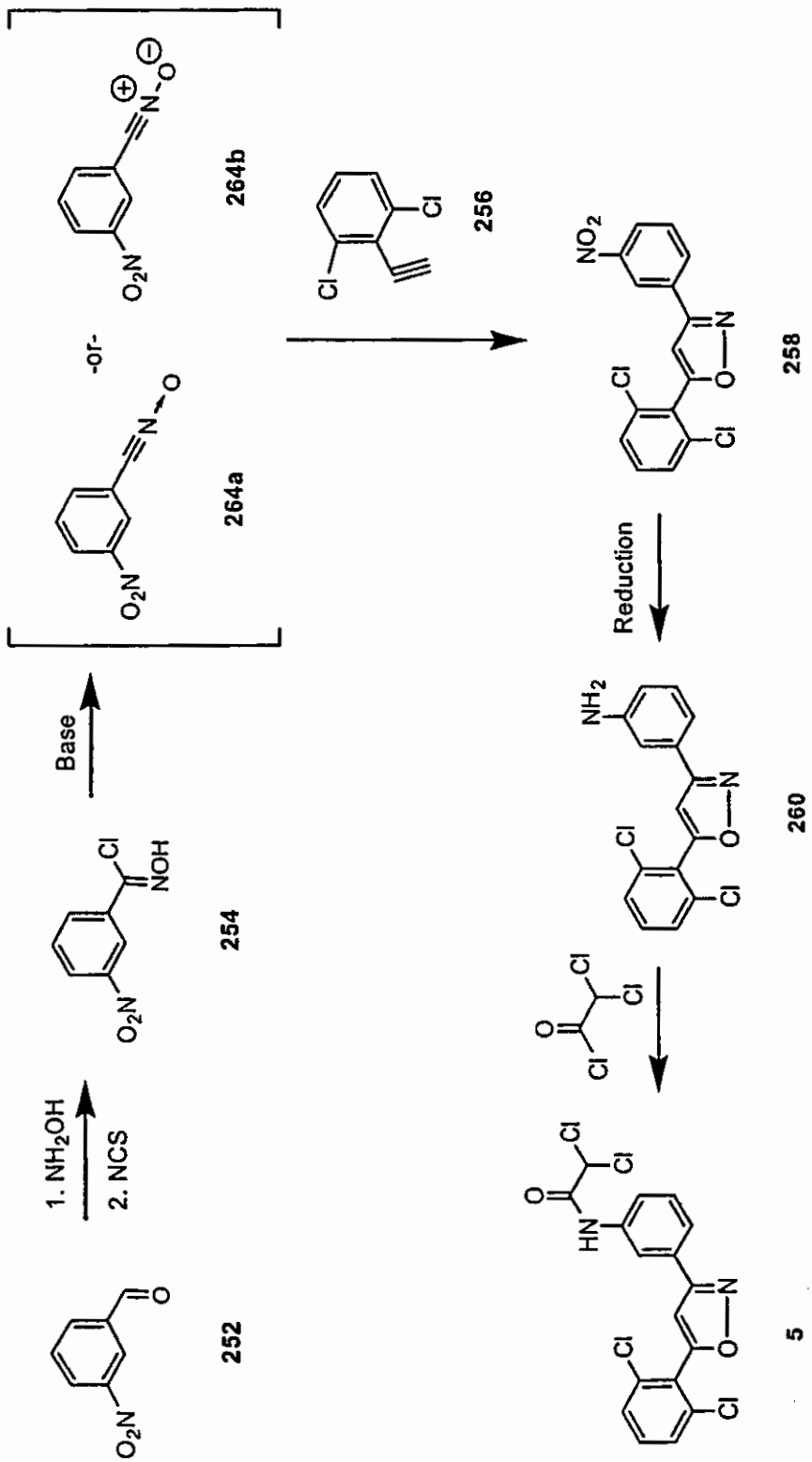


FIG. 5A

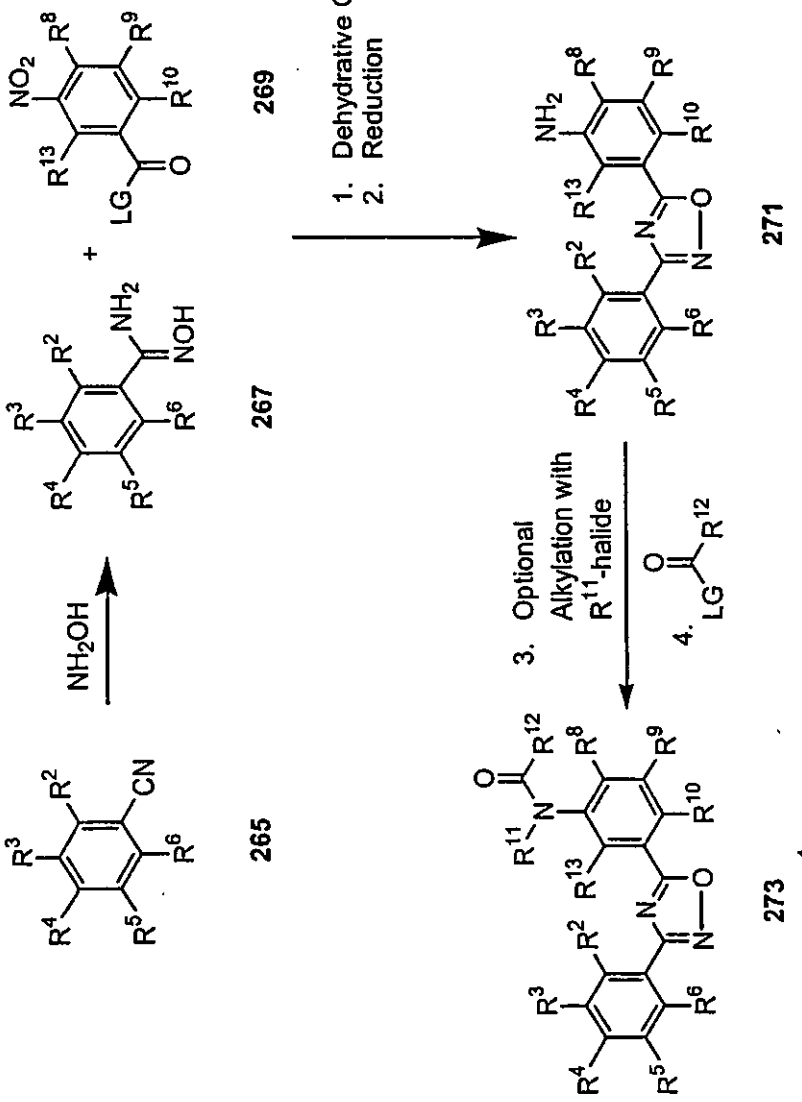

NH2OH
265
267
269
1. Dehydrative Cycloaddition
2. Reduction
271
3. Optional Alkylation with R11-halide
4.
273

FIG. 5B

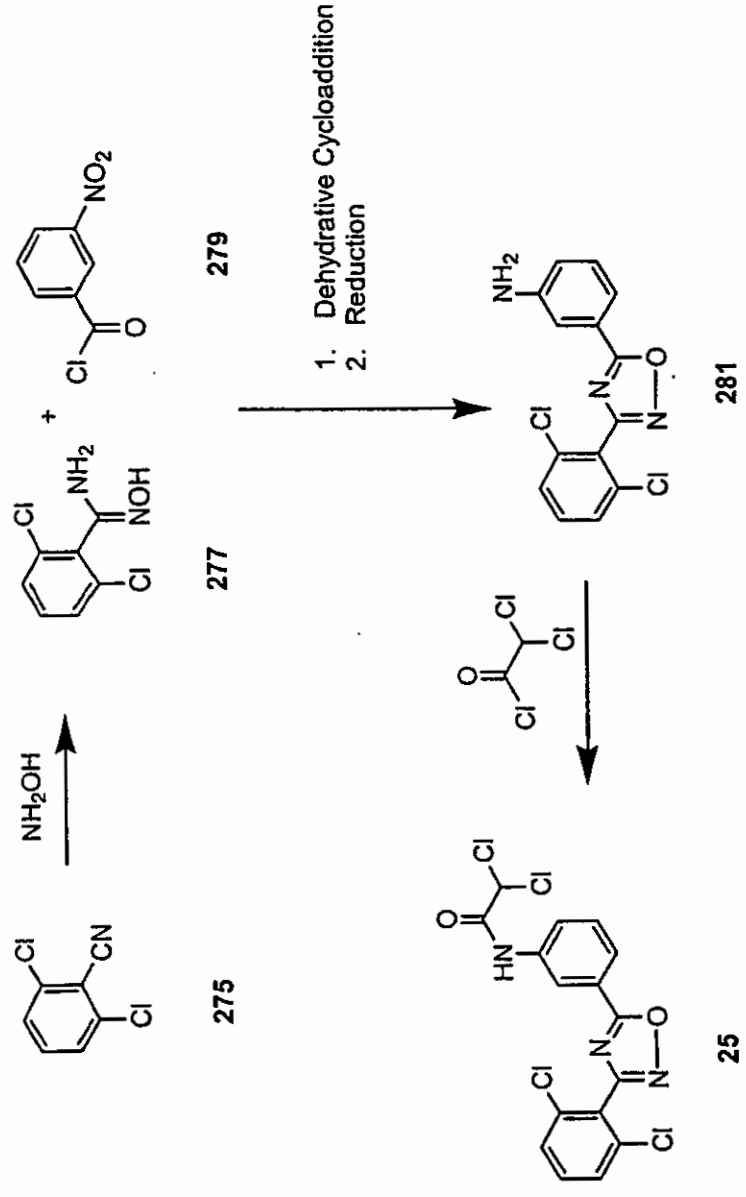

NH2OH
1. Dehydrative Cycloaddition
2. Reduction
275
277
279
281
25

FIG. 6A

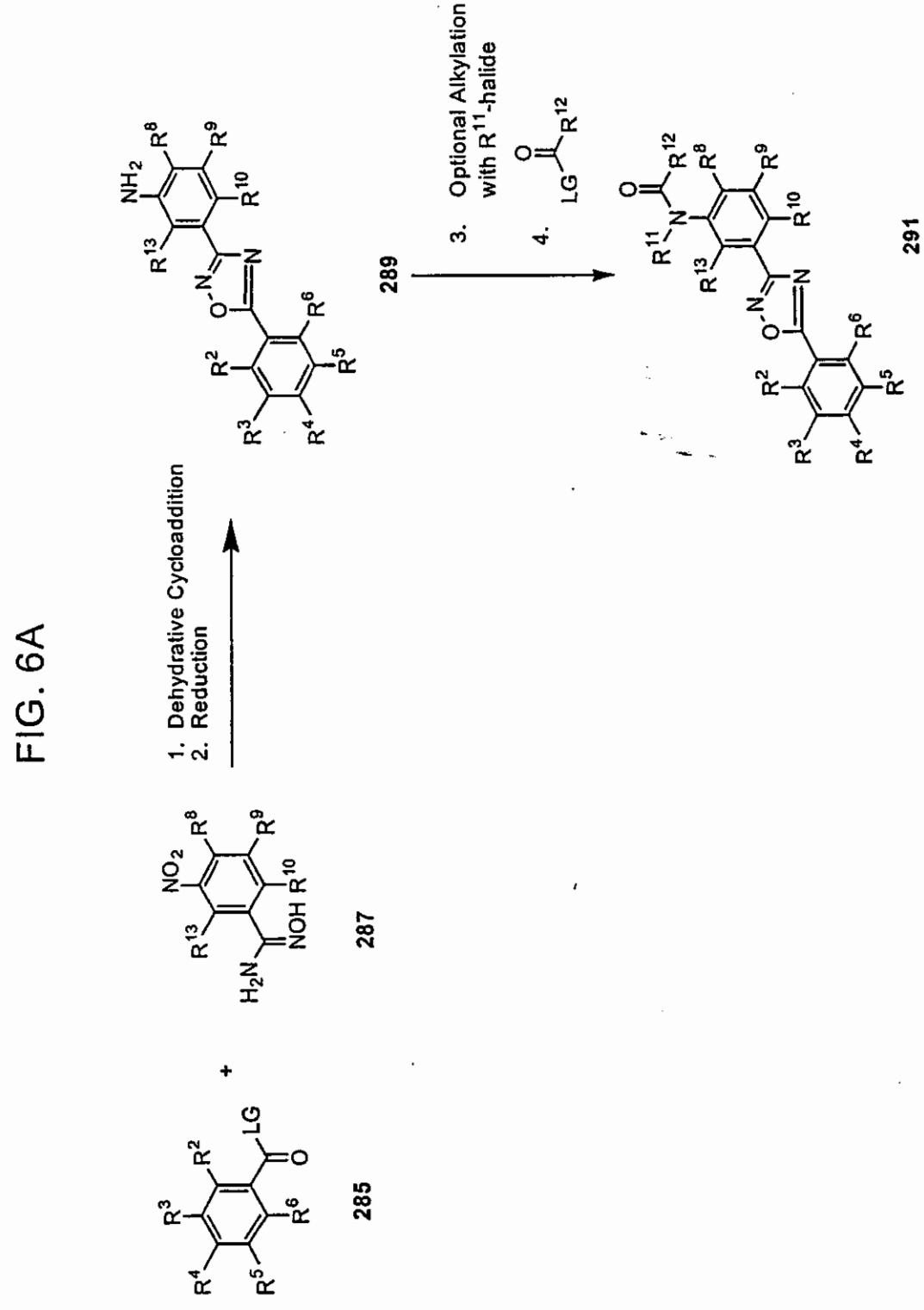

1. Dehydrative Cycloaddition
2. Reduction
3. Optional Alkylation with R^{11}-halide
4.
285
287
289
291

FIG. 6B

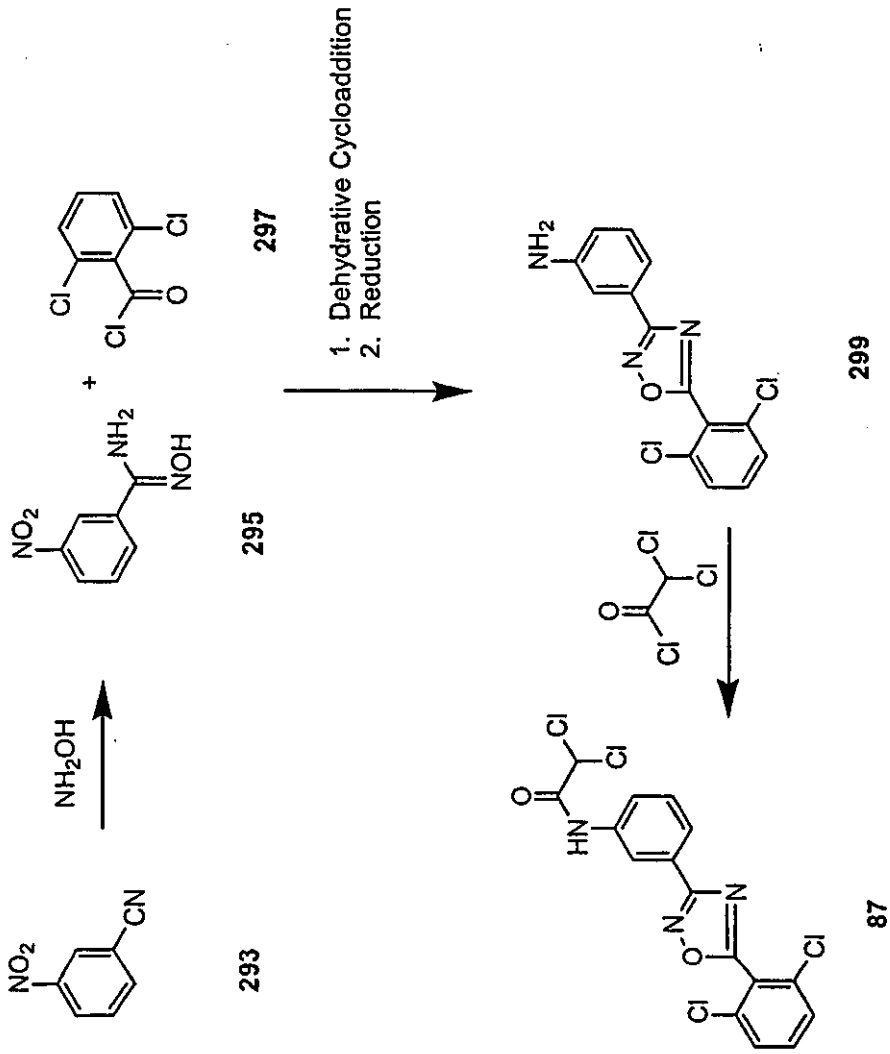

NO2
CN
293
NH2OH
NO2
NH2
NOH
295
+
Cl
Cl
Cl
O
297
1. Dehydrative Cycloaddition
2. Reduction
NH2
N
O
N
Cl
Cl
299
Cl
Cl
O
Cl
HN
O
N
N
Cl
Cl
87

FIG. 7A

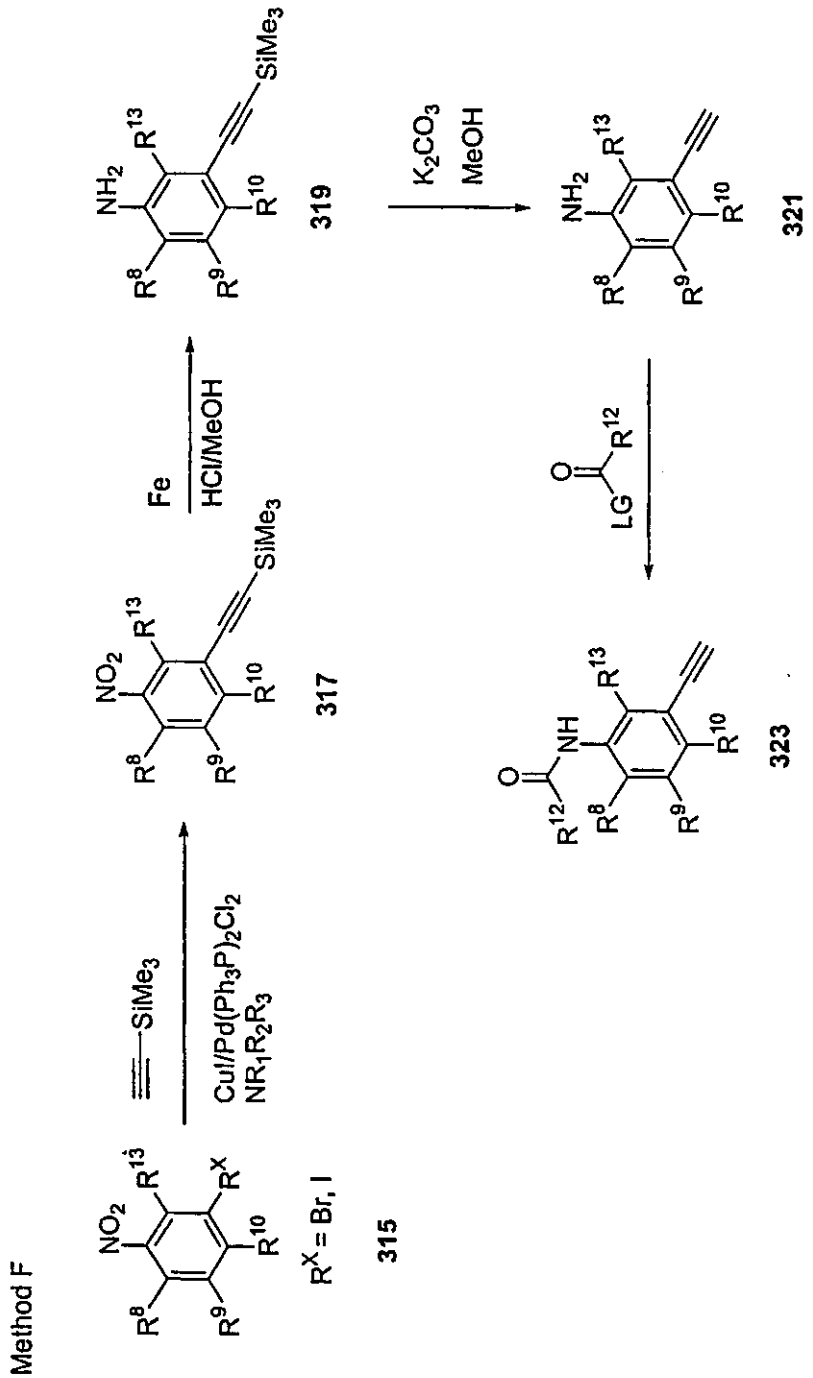
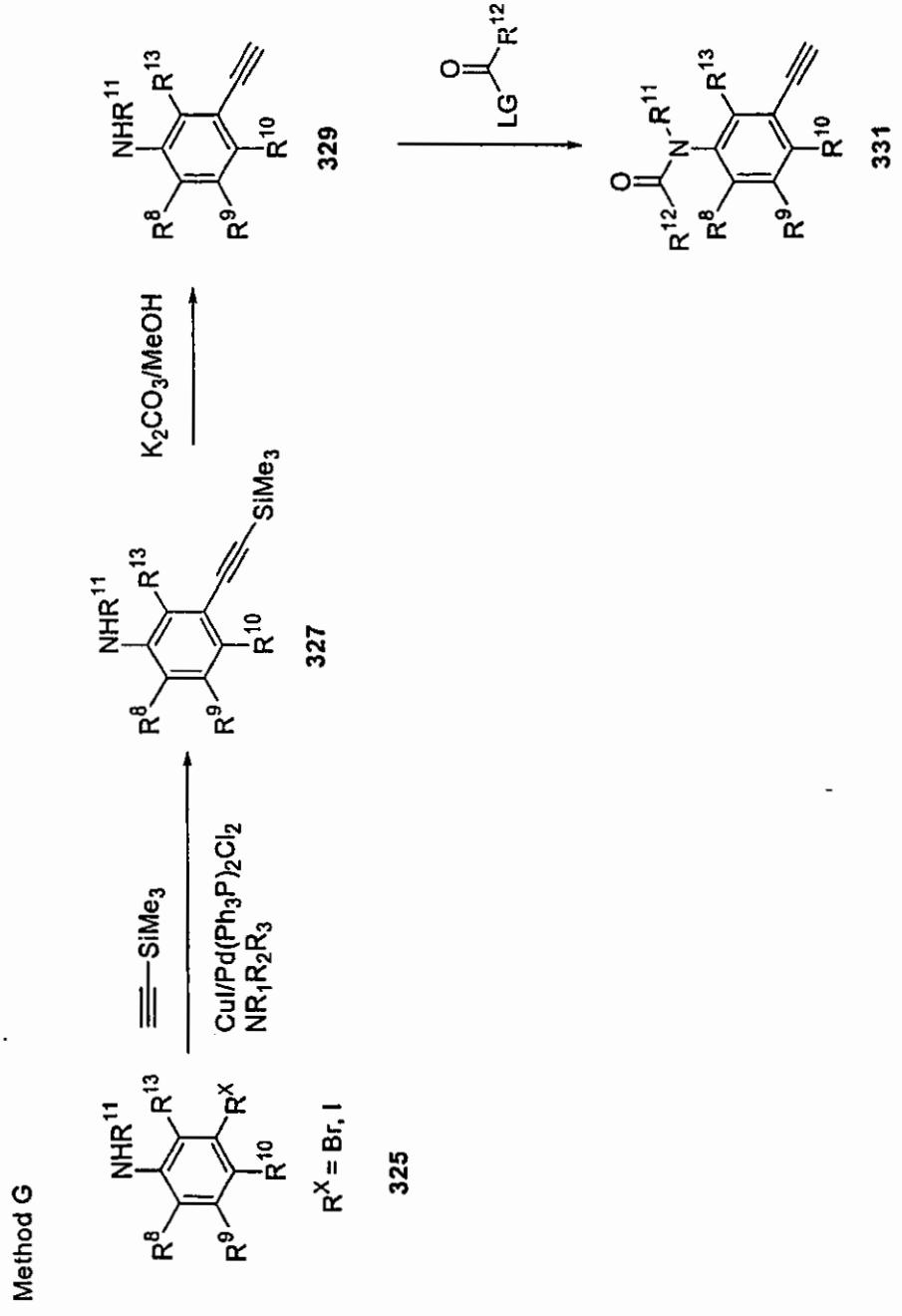

Method F
R^X = Br, I
315
317
319
321
323
SiMe3
CuI/Pd(Ph3P)2Cl2
NR1R2R3
Fe
HCl/MeOH
K2CO3
MeOH
LG

FIG. 7B


Method G
NHR11
R13
RX
R10
R8
R9
RX = Br, I
325
SiMe3
CuI/Pd(Ph3P)2Cl2
NR1R2R3
327
K2CO3/MeOH
329
O
LG
R12
331