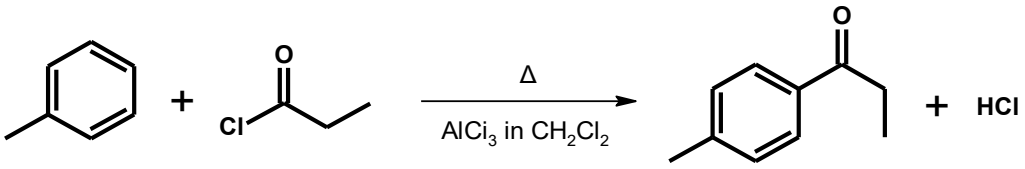
4-Methyl Methcathinone
(Rated as: excellent)

Hi bees,
I've been bored over the last couple of days and had a few fun reagents lying around, so I thought I'd try and make some 1-(4-methylphenyl)-2-methylaminopropanone hydrochloride, or 4-methylmethcathinone as I suppose it would be commonly called. Completed within 48 hours, starting from toluene. Each step is a first attempt only, and I've included suggestions for the procedure if I attempt it again. The first two steps work very nicely, but the yield killer is the final step, giving ~45%. However, this still corresponds to a 43% yield of product from toluene, so it's not too bad overall:

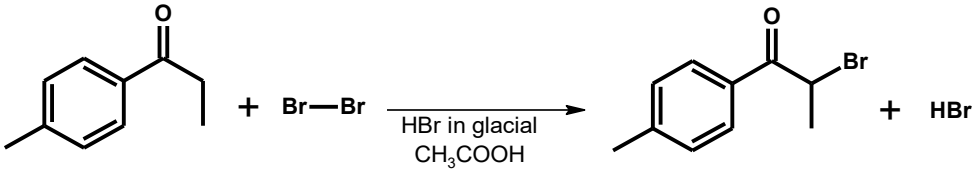
Preparation of 4-methylpropiophenone [1]



Amount	Units	Compound / Item
73	g	$AlCl_3$
300	mL	Dichloromethane
46	mL	Propionyl chloride
54	mL	Toluene
600	mL	Iced water
200	mL	5% NaOH solution
		Magnesium sulfate

54mL (500mmol, 46g) toluene was added over 30 minutes to a solution of 73g (550mmol) anhydrous aluminium chloride and 46mL (525mmol, 49g) propionyl chloride in 200ml dichloromethane cooled via an external ice bath. The solution was allowed to stir for a further 1.5 hours at 20^{o}C, then was carefully added to 500mL stirred iced water. The lower dichloromethane layer was separated off, and the aqueous layer extracted with 2x50mL dichloromethane. The combined extracts were washed with 3x100mL 5% NaOH, 100ml water, and then dried over magnesium sulfate. The solvent was removed, and the ketone vacuum distilled at 123-126^{o}C, to give 1-(4-methylphenyl)-propan-1-one as a colorless oil.
Yield: 70.0g (95%)

4-methylpropiophenone to 2-bromo-4'-methylpropiophenone [1,2]

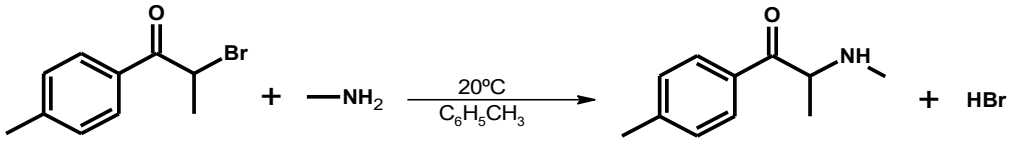


Amount	Units	Compound / Item
38	mL	4-methylpropiophenone
1	mL	48% HBr
14	mL	Bromine
125	mL	Glacial acetic acid
650	mL	Water
300	mL	Dichloromethane
		Magnesium sulfate

To a solution of 38mL (250mmol, 37g) 4-methylpropiophenone in 125mL glacial acetic acid was added 1mL 48% HBr followed by, over the course of an hour, 14mL (275mmol, 44g) elemental bromine. The reaction mixture, which changed to a nice pink color during addition, was stirred for a further 1.5 hours, then slowly poured into 500mL ice-cold water, with swirling after each careful addition. The cream-colored precipitated product was taken up in 200mL dichloromethane, and the aqueous layer extracted with 100mL dichloromethane. The combined extracts were washed with 2x250mL cold water, then dried over magnesium sulfate. The solvent was removed under vacuum, taking care to keep the temperature below 50^{o}C, leaving a turquoise oil, 2-bromo-(4'-methylphenyl)-propan-1-one, which solidified almost immediately on cooling, into sparkling waxy crystals.
Yield: 57g (100%)

Comments: Try and keep the temperature below 30^{o}C when removing the solvent – colored crystals indicate some decomposition (above were a very light color, so only mild). DCM would be a better extraction solvent since it could be stripped off at a lower temperature, causing less decomposition.

2-bromo-4'-methylpropiophenone to 1-(4-methylphenyl)-2-methylaminopropanone hydrochloride [3]



Amount	Units	Compound / Item
13.5	g	Methylamine HCl in 15 mL water
7.9	g	Sodium hydroxide in 20 mL water
11.4	g	2-bromo-4'-methylpropiophenone
6	mL	37% HCl in 24 mL water
115	mL	Toluene
225	mL	Water
		Acetone

To a stirred solution of 11.4g (50mmol) 2-bromo-4'-methylpropiophenone in 25mL toluene held at 20°C was added, over 5 minutes, 6.2g methylamine in 35mL water (prepared by adding a solution of 7.9g (198mmol) sodium hydroxide in 20mL cold water to a cooled solution of 13.5g methylamine HCl in 15mL water). The mixture was allowed to stir for a further 16 hours at 20-25°C, then was poured into 150mL ice-cold water. The toluene layer was separated off, and the remaining freebase extracted with 2x20mL toluene. The combined toluene extracts were washed with 3x25mL water, and then acidified with 2x15mL dilute HCl. The combined acidic extracts then washed twice with 25mL toluene and evaporated under vacuum to dryness, allowing an off-white solid to form. 20mL acetone was added and was heated to boiling, forming a homogenous solution, which was then slowly cooled, allowing crystals to precipitate. The crystals were filtered and rinsed with around 100mL ice cold acetone.

Yield: 4.8g (45%)

Comments: Try stirring for 24 hours at 0°C, which will inhibit pyrazine formation. It may also lower the yield, but I'll see next time I try. It's doubtful (IMHO) that a yield of over 50% can be expected for this third step, because of the side reactions which can and do occur.
Yield given before recrystallisation, but after concentration and re-filtering and washing of the 100mL acetone washes, which provided a further 1g of product. Recrystallisation is highly recommended to remove any remaining pyrazine, and can be done from acetone/methanol.

1 Steps 1 and 2 both based on a synthesis of a Pyrovalerone analogue, 4-MPPH, Pyrovalerone with a hexane chain instead of pentane. Thanks to our endearing Nemo Tenetur for providing the 4-MPPH synthesis .

2 The intermediate bromoketone is quite a powerful lachrymator, even when solid. Take care with washing your glassware after the synthesis, and please don't use hot water until you've thoroughly washed everything with cold water first.

3 Loosely based on **Post 289410** *(foxy2: "Methcathinone and ephedrine from propiophenone", Stimulants)*, although I never managed the 70-74% yields claimed when attempting this on bromobutyrophenone.

Of course this product could also be reduced in good yield to 4-methylephedrine, and then very easily made into (4-methyl)-methamphetamine. If you were to do that, I'd suggest reducing the bromoketone *before* adding the methylamine. This way, the methylamino group can be added under much more vigorous conditions, resulting in a higher yield. One attempt at this gave a yield of around 60%, but I'm sure it could be increased.

The bioassay went rather well too. I was a bit scared about what snorting 50mg might do, but since I've been almost constantly abusing the (badly synthesised) 1-phenyl-2-methylaminobutan-1-one (i.e. methcathinone with a butyl chain instead of the usual propyl), 50mg didn't do too much. I thought I'd wasted my time until I snorted another 100mg about 30 minutes later, and then it hit me. Intense rushes all over, lasting for well over 30 minutes. Since I have quite a high cathinone tolerance at the minute, I had another 100mg about an hour later, then 100mg an hour or so after that. Each time I could feel the rushes of energy coming across me, and after that, a fantastic sense of well-being that I haven't got from any drug before except my beloved ecstasy.

I'm still feeling the effects now, since I only completed the synthesis 6 hours ago, and began the bioassay an hour later . It's a fun drug, and although less potent than methcathinone (unless my tolerance is *really* high), it's easy to make, and best of all, legal! Hopefully someone will find this of use, or at least of interest...