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SUCCESSFUL 2C-B SYNTHESSES

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LONE DERANGER

RUN # 1

2,5-dimethoxynitrostyrene:

30g 2,5-dimethoxybenzaldehyde and 3g anhydrous NH4OAc was dissolved in 60ml of nitromethane. The solution was allowed to reflux slowly for 4 hours, and the solvent was distilled off under vacuum. The black residue was poured into 150 ml IPA, and crystallized to a crystalline mass of orange needles. The crystals was filtered with suction and dried on filter paper. I didn't like the color of the crystals (too much of a dirty orange), so everything was dumped into 100 ml of fresh IPA, stirred, and again filtered and dried, and now the color had improved vastly. Both IPA solutions was evaporated in vacuum to give ~30ml of a black, tarry substance with an acetous smell. Freezing or trituration of the tar didn't give any results, so the tar was thrown out the window (look out!). The yield of dry, orange crystals of 2,5-dimethoxynitrostyrene was 22.2 grams (58%).

2C-H freebase:

20 grams of LAH was added to 200ml THF in a 1000ml two-necked RB flask, equipped with a magnetic stirrer, and it fizzed some, but not much. Now 20 grams of the above nitrostyrene was added dropwise as a solution in 200ml THF through a dropping funnel, which caused the solution to boil, and when all had been added, the solution was allowed to reflux for 24 hours. The reaction mixture was allowed to cool, and 15ml IPA, followed by 15ml 15% NaOH solution, 30 ml THF, and finally 50ml of cold water, as fast as the exothermic reaction allowed. The solution now became a white sludge, which was filtered through a pad of celite, and the filter cake washed with some additional THF. The solvent was removed under vacuum, and the residue dissolved in dilute H2SO4, and washed with 3x25ml CH2Cl2, made basic with 25% NaOH solution, and extracted with 3x30 ml CH2Cl2. The extracts was dried over MgSO4, filtered, and the solvent removed under vacuum. The residue was distilled at 3 mmHg to give 10 grams (57%) of a slightly yellow oil, 2C-H.

2C-B Hydrochloride:

The amine was dissolved in 15 ml glacial acetic acid, and 10 grams of bromine in 20 ml glacial acetic acid was added (the bromine flask was cooled in the fridge for about 20 minutes before opening, and therefore almost no bromine vapors escaped into the room. If the bromine is cooled for a longer time than that, it solidifies). Soon the solution became a brown crystalline mass, which was allowed to cool in the refrigerator, and was then filtered and washed with 2x20ml cold acetic acid, which improved the color of the crystalline 2C-B hydrobromide to a shade of grey, instead of a dirty bromine-brown. Attempts to recover more 2C-B from the mother liquor and the washes failed due to heavy emulsions. The 2C-B HBr was dissolved in 100 ml of warm water, and basified with 25% NaOH solution. This was extracted with 3x30ml CH2Cl2, the pooled extracts dried over MgSO4, filtered, and the solvent removed under vacuum. The light amber residue was dissolved in a solution of 2.5 ml glacial acetic acid in 15ml water with stirring, followed by the addition of 6.5 ml of 37% HCl. In a few minutes, the solution solidified to a tan crystalline mass, which was filtered with suction, washed with 50 ml water and 75ml ether, then sucked as dry as possible. Attempts to recover more 2C-B from the filtrate and washes through acid/base extractions were fruitless. The precipitate was first air dried on a filter paper, then in a vacuum desiccator. The resulting white crystals of 2C-B hydrochloride weighed 9.0g (63%).

Total yield from 2,5-dimethoxybenzaldehyde 20% (Shulgin's yield 23%)

RUN # 2

2,5-dimethoxynitrostyrene:

2,5-Dimethoxybenzaldehyde (24.9g, 0.15 mol) was mixed with nitromethane (10g, 0.16 mmol), and ethylenediammonium acetate (2.7g, 15 mmol) in 150 ml IPA, and was heated lightly until all solids had dissolved. The mixture was kept at room temp for 24 hours and in the fridge for 24 hours, after which time the thick orange crystalline precipitate was filtered off and washed with 20 ml IPA and air dried. The yield was 27.75 grams (80%).

2C-H freebase:

2,5-dimethoxynitrostyrene (30 grams) was dissolved in 300ml of THF and added dropwise to a slurry of 30 grams of LAH in 250ml of THF in a RB flask fitted with a efficient reflux condenser as fast as the exothermic reaction allowed. The mixture was then stirred at room temperature for 12 hours and at reflux for eight hours, whereupon it was allowed to cool to room temp again. Next, 20 ml of IPA, 25ml 15% NaOH and 75 ml of water was added carefully to decompose the excess hydride and to convert the aluminum salts to a white, granular precipitate. The solids were removed by suction filtration through a layer of celite and the filter cake washed with additional THF. The filtrate was concentrated under vacuum and the residue dissolved in 2M HCl and washed with 3x35ml DCM, basified with 25% NaOH solution and extracted with 2x50ml DCM. The organic extracts was dried over MgSO₄, the solvent removed under vacuum and the residue was distilled at 6 mmHg to give 16.8 grams of 2C-H as a yellowish oil (65%).

2C-B Hydrochloride:

The amine was dissolved in 30 ml of acetic acid, and 15 grams of Br₂ in 30ml of acetic acid was added in portions of 5 ml with stirring. After a while the solution crystallized to a brown mass, which was cooled in the refrigerator, filtered with suction and washed with 20 ml acetic acid. This was stupid, I should have washed with more (say 2x25ml) as there still was brown gunk deeper down in the filter cake I didn't see at first. The 2C-B HBr was dissolved in 100 ml of warm water, and basified with 25% NaOH solution. This was extracted with 3x50ml CH₂Cl₂, the pooled extracts dried over MgSO₄, filtered, and the solvent removed under vacuum. The amber residue was dissolved in a solution of 3.5 ml glacial acetic acid in 25ml water with stirring, followed by the addition of 10 ml of 37% HCl. In a few minutes, the solution solidified to a tan crystalline mass, which was diluted with 30 ml water, filtered with suction, washed with 50 ml water and 3x25ml ether, then sucked as dry as possible. The tan precipitate (due to the bad acetic wash of the hydrobromide) was air dried on a filter paper and weighed 15.1g (63%).

Total yield from 2,5-dimethoxybenzaldehyde 32% (Shulgin's yield 23%, and at my last attempt I got 20% - This time I won over him bigtime!)

SUNLIGHT

A friend gave me a bit of 2,5 dimethoxy benzaldehyde that bought time ago. The label have a title with something like CRSB (Thanks Tom, the best for you). It was a bit yellow instead of white, but probably enough pure to start research.

18 g of 2,5-dimethoxybenzaldehyde was dissolved in 10 g of nitromethane in 5 g portions, added as fast as it could be dissolved. Finally a 6% molar ratio of cyclohexylamine was added and stirred a while. The solution was placed in darkness at about 25°C, and after 20 hours it was all a beautiful orange solid mass. The mass was dissolved in 36ml of hot IPA, and when cooled it again formed a solid mass that was filtered and air dried to afford 10 grams of nitrostyrene. Yield was about 50% of the expected, but probably my first error was to consider that the reaction was complete after only 20 hours. Next time I'll let stand at least 36 hours, I'm sure the yield will be higher. The nitrostyrene crystals formed fine carrot-colored needles.

I made a mix of 11 grams of thick aluminium (from a tart recipier) cut in small pieces about 2x10mm, and 9 grams of normal kitchen aluminium foil in 2x2cm. In the other hand, warmed 100ml of 96% ethanol and 100ml of acetic acid couldn't dissolve nitrostyrene. Addition of 30ml of water precipitated more nitrostyrene. Aluminium was amalgamated a la Shulgin. The warmed suspension was poured in the flask containing the aluminium amalgam, and immediately started a super exothermic reaction that thrown out some solution and aluminium. The ethanol was boiling, and there was also a lot of acetic acid smell. I thought I lost the reaction, but in five minutes, the rxn could be controlled with cold water. More alcohol was added, but a part of product was lost. Temp was about 60-80°C. Sometimes the rxn was heated a bit in warm water to activate it. A great part of aluminium didn't react.

Next day I made one of the worst workups ever in this kind of rxns. While filtering, 600 ml of water tap came into the flask. I washed the cake with water because the amine was in the acetate form (yes, sure), so I ended with more than 1 liter of solution. To avoid amine losses, H₂SO₄ was added and the solution concentrated till 150 ml, washed, basified and extracted (Aluminium hydroxides appeared and made the things more difficult). Evaporating of the solvent gave the characteristic fish-like smell of amines, and as the solvent was evaporated, the amine carbonate appeared (yes, 2C-H carbonate). I converted it to the sulphate salt, because sulphate is probably less soluble than hydrochloride (easier to purify) and easier to make. To the brown amine salt, the solution was added dropwise to a 50% ethanolic solution of H₂SO₄. Crystals began to form, whereupon I added acetone and filtered and washed with acetone three times to give 2.4 grams of yellowish 2C-H sulphate. Having errors and hazards, not really bad. Probably the best work up is the classical one,

basify, filter ... But doing things properly this one may be is not bad, and the main problem was that a bit of product was thrown out and the aluminium want react completely, may be is better to keep HgCl₂ in the reaction, as in the recipe I have based this redcuton, given at the Hive.

The 2C-H was recovered by basifying with NaOH solution, extraction with methylene chloride, drying over MgSO₄ and evaporation of the solvent. Now the 2C-B hydrobromide salt was formed. Bromine is dangerous and can't be pipetted. I attached the rubber-bulb of an eye-dropper to the pipette, and used gloves throughout the procedure. Some minutes after the addition (longer than expected) of the solution of bromine in acetic acid, the solution started to show yellow spots and finally everything was a solid mass. I decided to stop the process here, with the hydrobromide salt, and not convert it into the hydrochloride salt. So I thought the hydrobromide woudn't be soluble in acetone, I added acetone and washed the precipitate until it was white. I weighed it, shit, 800mg instead of 3 grams. Well, it seems that 2C-B hydrobromide is much-than-expected soluble in acetone. It's very soluble in water. Well, we learn from our errors, and I made at least 3 great errors, so next time will be better. I think the expected yields can be 70-80% in the preparation of the nitrostyrene, 60% in the reduction and almost 100% in the bromination.

The question is... What have I made, it is really 2C-B ? I have never taken it. I decided to make a human trial. I remebered that snorting 2C-B the dose must be cut in two (or three?), well, I decided to snort a bit to feel the minimum effects. I assumed my product would have 80% purity only, having that may be a part of 2C-H was not brominated and Shulgin said the HBr salt have hydrates.

To make the test, 120 mg of the product was mixed with glucose to a total weight of 380 mg, and then weighed up 120 mg of this mix (this is because my balance have +/-10 mg error), and I divided it into 4 parts, this would be 9.5 mg each, equivalent to 8.4 mg of the hydrochloride or so . If purity was 80% it would be equivalent to about 6.5 mg of pure HCl salt, so snorting it I will have the effects of 14-18 mg, not strong but enough to preceive clearly the effects. Yes, I snorted it. The first minute I observed some initial effects, then I was carried to powerful, warmful, wonderful, spiritual, incredible and one of the most beutiful psychedelics experienes in my life. I waas alone at home, but there was no fear, I felt myself protected with the love of the Mother. I felt conexions with all the spiritual worlds in my life, buddhism, yoga, taoism, christianim and specially shamanic. Visuals were a constant. I saw a lot, I felt a lot, I can't explain it, you know. Alone at home, I was happy, and more happy for this finding. I was opened. Life. Love. Light inside us. Tenderless wisdom. Strength in my body, Power. Two hours and half later effects were moderated. 2C-B is a great Teacher, a great tool to learn about oneself and about the earth, and Life. About the One. It's a great great material. I love it.

Well, I'm sure the product is probably 95% pure. My experience corresponds to a 20-24 mg level. Next time, more time in condensation, may be put HgCl₂ in the flask to start rxn, may be HCl insted of acetic acid, and finally, convert to hydrobromic salt in hydrochloric salt.

Nitrostyrene reduction by Al/Hg.

Recently I was dreaming about to reduce 2,5-dimethoxynitrostyrene to the amine 2C-H with Al/Hg and acetic acid. I anticipated a yield of about 50-60% but I got only 35%. Yields are not good, but Shulgin reports 40% for 2C-B and 50% for 2C-H with LAH, so might be interesting to avoid buy / use LAH.

Proportions used:

- 1 g 2,5-Dimethoxynitrostyrene
- 10 ml Acetic acid
- 15 ml 96% Ethanol
- 5 ml Water
- 50 mg HgCl₂
- 2 g Aluminum foil

The reaction must be carried at about 60°C, otherwise all of the starting nitrostyrene won't be dissolved. Some tips are:

- Make a solution of everything but the Al, then add the foil, cut to oneinch squares at a rate enough to keep the temp around 60°C, and add until the orange colour disappear. About the double weight of nitro will be enough, maybe less.
- Filter off the Al sludge, wash it with alcohol, then basify the solution with 25% NaOH. Filter again to remove the crystallized sodium acetate, and wash the filter cake with water.
- Remove the solvent under vacuum, dissolve the residue in dilute H₂SO₄, and wash with 3x20 ml CH₂Cl₂. Basify with 25% NaOH and extract the solution with 3x25 ml CH₂Cl₂. Dry the pooled extracts over MgSO₄, remove the solvent under vacuum, dissolve the residue in anhydrous ether, and saturate the solution with anhydrous HCl gas to precipitate pure 2C-H hydrochloride. To recover the 2C-H freebase, distill the residue above under vacuum instead.

GYRO GEARLOOSE

In a drug induced stupor, I heard a catapillar on an opium flower relate this story to me. I wanted to try 2C-B, but could find none. So being the nutcase I am I decided to try it . It didn't sound so bad. I got 125 g of 2,5-dimethoxy-benzaldehyde. I wanted to try 25g first. Good thing because trying to simulate a steam bath on a heat pad does not work.

The result of cooking the styrene on the same yields 23 g of TAR.

Next I wanted to try on a waterbath from a rotovap. Started with the whole ball of wax this time. Slammed 100 g of 2,5-dimethoxybenzaldehyde in the flask with nitromethane and cyclohexylamine. When I turned the temp to boil it didn't get dark so fast as before. Two hours goes by and then 30 more min. Shut down time. I hook up the vac and start pumping like mad, hardly two min. goes by, when all of a sudden, orange ice bergs began to appear. 10 seconds more and the whole thing was a mass of pumpkin cake. I always wondered what Shulgin ment when he said grinding under IPA. Well, I found out. This shit is solid. so for two hours I grind and I grind and I grind. Is there a explosion proof Braun mixer? Then I boil the IPA and clean it up some. Still I got 97 g of orange needles.

Now for the scary part. LAH. I have seen with my own eyes it goes boom im wet. Make slurry of it in THF, add to flask, wash in THF on funnel, add more THF, I for one did the N2 gas method, peace of mind. I Let it run at reflux for 24 hrs. Stir like mad, add IPA to kill LAH while stirring, do not stop stirring for any reason. After the fizzing stop, add the 15% NaOH *slowly*. When it's all white and heat slows down (put it in cooling bath) filter it.

Distill at this point. Some worry at this point because Shulgin said it picks up carbon dioxide fast. I put the distilled 2C-H under N2 in flask. Mixed up the bromine and acetic acid. Hey this stuff's not that bad, In my fume hood. I wouldn't want to open one of those bromine flasks outside it though. We add it to the oil, oops, we add 10g too much. Two hours later no yellow stuff. Hmm. I decide to vacuum it off for a while and in two min the whole thing is yellow. Yah. How did we add too much bromine you may ask. Another person weighed out the bromine with the assumption of realized product and only mentioned that fact after I added it to the 2C-H oil.

Well anyway, we then made up the NaOH solution, began adding it to flask of yellow stuff. Wha, had to transfer it out to bigger flask, much bigger. Finally the dark oil dropped out. I wish these guys would stop assuming that I might know anything. I wish god when people post they would not leave out anything, because until I get the lab cam installed in their lab, I might not (KNOW) what I don't know. anyway, I sure wasted a lot of money finding out that same info. Distilled the oil, added it to 100ml dH2O, added glacial acetic acid until the oil went into solution. I then added slowly the HCl and crap - nothing right away. The flask heated up. Lots of it. The next day, the flask is filled with brown crystals. I remove some of them and smell them - smells like fish.

I know nothing about chemistry but decide to try to vacuum the volatiles out of the flask to see what gets left there. After a few hours I see brown icebergs appear in the flask, then suddenly almost an explosion of brown acetate-like crystals appear, bubble briefly and solidify. I wonder what they are since its not mentioned in the workup. Well, I pour a little acetone on some and they bubble. I then find out from my associate that the acetone had HCl in it. When I again look at the dish the stuff has changed to white fine snowflake crystals. I pour more out onto a watch glass and add more HCl and acetone - bang - more bubbling and more pure crystals, so I add some acetone to the flask and pour in some HCl, then watch the change, when it stops I add more HCl, more white crystals, I guess if I were a chemist I would call this titration, but I'm not so I cannot tell. Anyway, this non-chemist ends up with 56 g of 2C-B HCl after all the thrashing about, starting from 100 g of the 2,5-dimethoxybenzaldehyde, probably a bad yield but I think I will never need to make it again this life.

DR GONZO

2,5-Dimethoxynitrostyrene

50g of 2,5-dimethoxybenzaldehyde was placed in a 250 ml roundbottom flask. 5.5g of most-likely-not-anhydrous ammonium acetate was then added, it was swirled well, attached to a reflux condenser, and heated in a water/steam bath. The flask was gently swirled every half hour or so. The solution started out light yellow and eventually turned a near-opaque red, and bubbled gently throughout the reaction. The water bath was allowed to cool a little, and the flask removed and immediately attached to an aspirator. After some swirling and bubbling (watch out for splashing out of the flask!) some crystals appeared, and within about 3 seconds the flask became solid with yellow-orange-red powdery crystals. After some vigorous shaking and gentle heating, the stuff was free enough of nitromethane and the vacuuming stopped.

All the gunk was scraped out of the flask (with the aid of just a little IPA) and packed into a buchner attached to a filtering flask. This was attached to the aspirator and the nasty, dark fluid pulled off. The cake was jabbed and poked with a spatula to break up clumps, and IPA was sparingly squirted on the cake (still vacuuming) to clean it up. This significantly brightened the color to a nice-looking yellow, still powdery. The cake was dumped onto a plate, well chopped up, and allowed to dry overnight. Final mass: 36.5g of 2,5-dimethoxynitrostyrene, which turned into nicer-looking needle-like crystals after all the IPA was gone. It was put in a bottle and kept in the freezer.

2C-H freebase

I mustered all my courage and got out the bottle of LAH - this is the first time I have ever done an LAH reduction. I was scared shitless of this stuff, and my hands were shaking. 300 ml of anhydrous THF was placed in a 1 liter four-neck roundbottom flask, of which two of the necks were stoppered. 7.5g of LAH was (CAREFULLY!) weighed out and dumped into the flask. There was a bit of fizzing, and I had brought a fire extinguisher into the room just in case. 15g of 2,5-dimethoxynitrostyrene was dissolved in 200 ml of anhydrous THF and placed in a pressure-equalized addition funnel. A reflux condenser was placed on one neck of the flask, and the addition funnel on the other. Vigorous magnetic stirring was

started, and the styrene solution allowed to drop in at about one drop every 1.5 seconds. At this rate, the whole addition took four hours (DO NOT GO FASTER!) and by about one hour the solution had heated itself to a very gentle reflux. The heat was turned on to maintain the gentle reflux, and the reaction allowed to run for 20 hours more.

After cooling down, IPA was added very slowly (with stirring!) to neutralize the LAH. When IPA produced almost no reaction, water was added very slowly, which produced more fizzing. When a few ml of water had been added (very little fizzing now), 25% NaOH was SLOWLY added, which made the solution quite hot, and produced a horrible gel which was essentially impossible to stir. NaOH addition was continued, and the gel started to convert to white granules that quickly sank to the bottom of the flask when stirring was stopped, which is exactly what's supposed to happen! Hooray! Small amounts of water were interspersed with the NaOH additions, to make sure that there was enough water available for the solid to form. When aliquots of NaOH and water produced no more change, stirring was stopped. Now there was a distinct yellow color to the THF overhead.

The mess was vacuum filtered, which was actually not painful at all. More THF was added to the mess left in the flask, it was all coaxed into the buchner, and the cake washed with some THF. The cake was almost too pretty to throw away.

The filtrate, which was about 700 ml at this point, was crystal clear and pretty yellow. I was distracted for a few days, and when I returned to the lab it had evaporated down to about 400 ml. This was vacuumed off in a roundbottom flask, leaving a dark oil, which was impure 2,5-dimethoxyphenethylamine freebase. This was dumped into a 500 ml sep funnel, along with a couple hundred ml of dH₂O and maybe 40 ml of muriatic acid, and shaken. Almost everything went into solution. This was then washed with 3x50 ml of xylene. The first wash was disgusting, the second wash dirty, and the third wash was just slightly off-clear.

The aqueous phase went back into the sep funnel, and 25% NaOH was added until the solution was fairly basic (~ph 12). As the NaOH was added, clouds of white freebase exploded out of solution, and at least 3-4 ml of amber freebase fell right to the bottom of the funnel. This was extracted with 3x50 ml of methylene chloride. The pooled DCM extracts were then washed with 100 ml of H₂O with NaCl, then with 100 ml of H₂O with NaHSO₄. The DCM was then vacuumed off, leaving 7.6g of purer 2,5-dimethoxyphenethylamine freebase. A drop of this freebase was put on a plate and blasted with some CO₂ gas, and a solid salt (the carbonate) rapidly formed - which is exactly what's supposed to happen with 2,5-DMPEA. Awesome.

2C-B Hydrobromide

Now, this 7.6g went into a 50 ml beaker, and 7.6g of glacial acetic acid was added. Whoa there... that's exothermic! And now there's like two grams of the acetate salt of 2C-H at the bottom of that beaker! A stirbar was dropped in and it was stirred gently. Now, 7.6g of GAA went into another beaker, followed by (yuck) 7.6g of bromine. (cough, cough, hack, argh!) A bit was added to the stirring freebase mix, and it began to boil, but that subsided quickly, and the rest was added over about 20 seconds, with much fuming. A plate was slapped on top of the beaker to keep the fumes down. The acetate crystals had redissolved.

I watched for a few minutes and noticed the beaker was cooling (a good sign - at least it wasn't getting hotter). Then I left and came back 15 minutes or so later. The beaker was nearly solid with goo! Literally grams and grams of 2c-b hydrobromide. After about half an hour the beaker was put in the fridge, and when it was mildly chilled (but not too much - don't freeze the GAA) it was vacuum filtered. The mess was then packed tightly into the buchner, and washed with a very sparing amount of just-above-freezing GAA - maybe 10-15 ml total. This significantly lightened the color to a pleasing light brown/beige. While still a little bit on the dirty side, I sure wouldn't have a problem with eating it.

I placed a milligram or two on my tongue. FUCK! That's bitter as hell! And ya know, it tastes just like some other 2c-b I once tasted.

It was decided that the 2c-b would be left in HBr form, at least until it had been bioassayed. The hunk of precipitate in the buchner was chopped up on a plate with a razor and placed in a vacuum dessicator. Dessication is still in progress, but a recent weighing gave 8.1g of 4-bromo-2,5-dimethoxyphenethylamine hydrobromide. After full dessication, the final yield is expected to be above 7.5g.

The total yield after dessication was 7.71g of 2c-b HBr. Bioassay of 30mg felt like around 25mg of the hydrochloride. Mmmm, colorful.

2C-B hydrochloride

2g of the HBr was shaken with around 100 ml of water. Lots didn't dissolve. A bit of 25% NaOH was added to make it basic (~ph 12), shaken a lot, and a dark but clear oil started to settle out. All particulates of the HBr had now been dissolved. The oil was extracted 3x with 40ml DCM. The DCM was then removed, leaving a couple of ml of oil.

This was dissolved in 30ml of water with a few drops of acetic acid. In retrospect, this was WAY too much water, because the bit of HCl that was then added caused no crystals to precipitate. Oops. So the beaker was put in the freezer. When it had frozen solid, a buttload of 2c-b HCl crystals were seen suspended in the ice chunk. The entire ice chunk was just plopped in a Buchner and vacuum filtered as it melted. This, after dessication, left 1.17g of very clean looking (just a tiny bit off-white) 2c-b HCl. Bioassay of 25mg felt like, well, 25mg of the HCl.

Another 4g of the HBr was shaken with 100 ml of water, NaOH added until basic, and then oil settled out. Extracted with 3x20 ml DCM. DCM evaporated. This time, much less water was added - about 8 ml of dH2O. Then a few drops (probably about 1 ml) of glacial acetic acid was added, until everything was in solution. The transition between milky half-solution and total solution was pretty obvious, leaving just a little bit of swirly oily crud at the bottom. Then, drops of concentrated HCl were added with swirling. Initially, nothing happened, but then each drop of HCl produced a big chunk of wet crystalline 2c-b HCl in solution. Eventually, the solution was thick with crystals, and more drops of HCl didn't make any more precipitate. This threshold is kinda hard to see - you have to pay close attention to see if a drop makes crystals towards the end, because the whole damn thing is full of crystals already. The mass was vacuum filtered, washed sparingly with a couple ml of dH2O, and dried - this gave about 2.5g of 2c-b HCl.

The filtrate was put back in a beaker and a couple more drops of HCl added. No crystals. OK, so the beaker was then put in the freezer. After it was frozen solid, it was dumped in the Buchner and vacuum filtered while the ice melted. The precipitate was washed with a tiny bit of dH2O and dried, bringing the total yield for the whole 4g of somewhat impure 2c-b HBr to about 3g of very nice looking, slightly off-white 2c-b HCl. The theoretical yield of the HCl should be 3.48g, so the actual yield was 86% from the HBr.

This was my first truly successful high-yield 2c-b synthesis. Previous attempts had used different reductions (like Al/Hg or a combination of NaBH4 and Al/Hg) with little success - like less than a ml of freebase from 20g of styrene. The LAH reduction is what really made good yields possible. Also, in the past, bromination never produced a hunk of crystals, probably because the amount of product was so small. So I had to vacuum off the bromine/GAA goo, then hit it with acetone - which gave a yield of 250 mg 2c-b HBr with a 20g styrene investment. With alot of freebase to brominate, the bromination worked as advertised with that beautiful hunk of crystals.

To others who may try this: making the styrene (or propene) is really easy. I've done it many times for several different benzaldehydes and only screwed up once (and the screwup wasn't even my first time). The real key to doing this right is the reduction. LAH is dangerous, but it seems like it's hard to screw up if you really take care with it. And when you have a lot of freebase going into the bromination, it will behave like you want it to. Also, use the GAA sparingly during bromination; Shulgin uses a bit much, I think.

R H E N I U M

2,5-Dimethoxynitrostyrene

2,5-DimethoxyBenzaldehyde (30g), Ammonium Formate (5 g) and nitromethane (60 mL) were stirred together at reflux for 6 hours. The solution quickly changed to a yellow colouration before darkening to a dark red-black. The material was cooled and a large amount of orange solid precipitated out of solution. The material was poured onto a filter and washed copiously with iso-propanol (IPA) (~250 mL) which lightened the colour to a pale orange-yellow. After drying, the product was weighed (~38 g). The excessive weight of material could not be explained because the material was dry and clean to NMR. This has occurred previously, and no reason was determined for it's occurrence. This would have reperussion on the overall yield.

2C-H Freebase

To a solution of freshly distilled THF (~40 mL) in a 500 mL two-necked flask was added lithium aluminium hydride (LAH) (7.6 g) in pellet form. The flask was flushed out with nitrogen, and 2,5-Dimethoxynitrostyrene (15 g) was added slowly (via a dropping funnel) as a solution in THF (~150 mL) over a period of 45 minutes with stirring. As the 2,5-Dimethoxynitrostyrene was added, it's yellow colouration disappeared immediately. The mixture was then brought up to reflux temperature for 32 hours. At then end of this time the solution was cooled and IPA (10 mL) was added dropwise. Followed slowly by 25% NaOH (~30 mL), water (~25 mL) and then sufficient THF to loosen the formed salts. The material was filtered through a filter with Celite to provide a clear yellow solution (~300mL). The salts were washed with additional THF. The THF was removed on the Rotavap, and the aqueous residues was made acidic with a 15% HCl solution. The yellow colouration changed to a darker brown upon addition of the HCl solution. Washing the aqueous phase with CH2Cl2 (3x50 mL) removed most of this dark colour. The pale yellow aqueous phase was then made basic with 25% NaOH. Upon the addition, a large white cloud of material separated out of solution. The aqueous phase was washed with CH2Cl2 (3x75 mL), and the combined organic phases were dried with MgSO4. The solvent was removed on the Rotavap and then under vacuum to provide the 2C-H freebase (~3.5 g). The nature of the material was confirmed by NMR and comparison with the standard spectra.

2C-B Hydrobromide

To 2C-H freebase (3.5 g) was added Glacial Acetic Acid (GAA) (5 mL). Then Bromine (3 g) in GAA (~7 mL) was added. Some heat was evolved, but it was decided to gently heat the material on an oil bath for 20 minutes to ensure complete incorporation of the Bromine. After the solution was cooled, tan coloured material was observed to be precipitating out of solution. After a further 20 minutes at room temperature, the material was filtered and washed with freezing GAA (2 x 15 mL) to leave a white solid. The material was dried under vacuum to yield the white powder, weighing 1.1 g.

Notes and Human Bioassay

Because of the low yield, it was not certain whether the material isolated was actually the 2C-B Hydrobromide. Even though the formation of the 2C-H freebase had been confirmed by NMR, given the failures of past reactions, it was decided that a human bioassay was the fastest way to determine the success of the reaction. Subject A sampled 34 mg. No effects were noted after 1 hour. A further boost of 24 mg provided only slight stomach upset and an effect difficult to distinguish from the baseline effects for that particular subject (A). A second subject (B) was procured, and who sampled 41 mg. Subject B experienced time dilation, visual distortion and other strong effects consistent with their personal definition of a + + +. The sample was submitted for Mass spectroscopy, which revealed complete uptake of the bromine for a molecular ion of 260 with the distinctive bromine isotope pattern (Br79/Br81). Given the evidence, it can only be assumed that subject A is not particularly susceptible to the effects of this particular batch of 2C-B Hydrobromide. Shulgin makes note that there are many complicated salt form of the hydrobromide, but this would not be expected to be responsible for the differing physical effects.

The reasons for the low yields can possibly be attributed to a number of factors. The reflux time with LAH may have been excessive but this seems unlikely. The washings were not back extracted, and some material may have been lost here. The ammonium formate method was successful even though it did generate excess material. NMR of the nitrostyrene indicated the styrene protons had been shifted to ~7-8 ppm consistent with the presence of the electronegative nitro group. The presence of excess unknown material in the nitrostyrene would mean that there would have been less 2,5-Dimethoxy- nitrostyrene added at the reduction step which would lead to much decreased yields. This is the most likely source of the poor yields.

Areas for experimentation in the future for this particular reaction scheme include, changing the base for the nitrostyrene step to yet more compounds. Also, use of AlCl₃ in conjunction with LAH to generate alane AlH₃. This may prove to be a better reducing agent with a lower requirement for the amount of LAH needed. The reason as to why subject A was immune to the effects of the 2C-B Hydrobromide must also be investigated. Possibly with +50 mg levels or possibly a monoamine oxidase inhibitor (MAOI).

I would like to acknowledge the help and assistance of several important people. Most notable Rhodium, Beagle and Labrat, but also all the other Hive Bee's.

YELLIUM

Let me tell you a story about what my elves did last weekend, when they tried to prepare 2cb. (Oh, and before you comment on their lab technique: yeah, I know it sucks. Was the reason that they decided not to start a career as organic chemist. Does anybody know where you can get better elves? ACME?)

OK, read this, shiver and be warned. Don't make the mistakes they made.

One of the things they found out is that you should preferable use a lot of solvent. The problem was that they were a little limited on dry THF. They noticed that shulgin & all used lots of THF; all they'd got was 250 ml for 13 grams of LAH and 26 grams of nitrostyrene. Poured 100 ml THF on 13 gr LAH, which gave a good amount of bubbling (damn! and they'd been drying this stuff for four days on Na!). They knew this is the wrong order of adding things, but the LAH was standing there from the previous weekend when they found out that their THF was *very* wet. Well, proved that the LAH was still OK.

Now, they don't know what magical properties the nitrostyrene has in other labs, but it was impossible to dissolve in 150 ml THF at room temp. Damn again!

So, in zwit's spirit, with the LAH waiting for something to be reduced, they decided to just continue and boldly add their nitro-suspension. Well, they knew that things would be a little rough, but if you add four drops and see a little flame escaping, you know you're going to be late home tonight :-|

They soon found out that chilling the whole mess makes the addition less troublesome. O, and make sure you don't have any undissolved LAH on the walls of your flask. And don't give the fscking stirrer a chance to get stuck!.

Adding the suspension is no fun: it tended to clog up the addition funnel. Using a pasteur pipette to carefully push the stuff through the hole in the crane without letting everything run suddenly into your flask is an adventure in itself.

After two hours of dripping & pushing things got a bit smoother. Addition didn't produce as much heat&smoke as before. Afraid that they would run out of active LAH, they stopped the addition here. After drying and weighing the the remaining nitro, they figured out they'd still added 15 grams of nitrostyrene.

From then on, everything went pretty smooth. Let the stuff reflux and see the color turn from grayish green to grayish brown to grayish purple/brown.

24h later: Workup was easy. Destroyed the LAH with IPA (keep your ice nearby!). Added NaOH. They didn't recall any spectacular fsckups over here. Proceeded to brominate the stuff. Went smooth ditto.

One thing about xtalizing 2cb: stick to the recipe Shulgin gives in PiHKAL. Impossible to fuck up, if you scale all numbers according to your estimated amount of 2cb. Gives you a nice solid chunk of crystals. There's only one thing `dangerous':

wear gloves when you scrape the crystals out of your flask. They did, but for some fscking reason the work-up elve accidentally got a tiny bit of unwashed 2cb powder on her right finger *before* putting on gloves. Was only .5-2mg, but definately noticeable.
