

Microgram

Bulletin

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- NOVEMBER 2006 -

- INTELLIGENCE ALERT -

“PURPLE” (COUGH SYRUP CONTAINING CODEINE AND OXYCODONE) IN WILKINSBURG, PENNSYLVANIA

The Allegheny County Medical Examiner’s Office, Division of Laboratories (Pittsburgh, Pennsylvania) recently received a clear glass vial containing a viscous, nearly opaque purple liquid with a strong grape odor, alleged “Purple” (cough syrup supposedly containing cocaine and hydrocodone) (see Photo 1). The exhibit was acquired in Wilkesburg (a suburb of Pittsburgh) by the Wilkesburg Police (details sensitive). Analysis of an extract of the liquid (total net volume and mass 10 milliliters and 12.2 grams) by GC/MS and GC/FID, however, indicated neither cocaine or hydrocodone but rather a mixture of doxylamine, promethazine, dextromethorphan (all non-controlled), codeine, and oxycodone. The codeine and oxycodone were not quantitated, but based on the chromatograms were at a rather low loading. This was the first submission of “Purple” to the laboratory.



Photo 1

- INTELLIGENCE ALERT -

BROWN HEROIN IN NORTH CHICAGO, ILLINOIS

The Northeastern Illinois Regional Crime Laboratory (Vernon Hills) recently received a large lump of a dark-brown substance with a strong acetic acid odor, that field-tested positive for heroin (see Photo 2). The exhibit was seized by the Waukegan Police at a residence in North Chicago, along with large amounts of cocaine and cannabis (details sensitive). Analysis of the substance (total net mass approximately 360 grams) by GC/MS confirmed heroin, and also identified 6-monoacetyl-morphine (6-MAM), morphine, and noscapine (not quantitated, but a fairly high loading of heroin and 6-MAM based on the TIC). This was the largest amount of heroin ever submitted to the laboratory.



Photo 2

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- INTELLIGENCE ALERT -

COMPUTER PROCESSORS CONTAINING HEROIN IN BOGOTA, COLOMBIA

The National Institute of Legal Medicine and Forensic Sciences Laboratory (Bogotá, Colombia) recently received 8 commercially packaged, advanced computer processors, each containing a compressed brown powder inside its heat dissipater, suspected heroin (see Photos 3 and 4). The exhibits were en route from Colombia to Miami, Florida and were seized by Colombian National Police at the El Dorado Airport in Bogotá. Of note, the processors were fully operational and the packaging (including the boxes, not shown) appeared to be completely legitimate. Analysis of the powder (total net mass 214.4 grams) by UV, GC/FID, and GC/MS confirmed 70 percent heroin. This was the laboratory's first encounter with this smuggling technique.

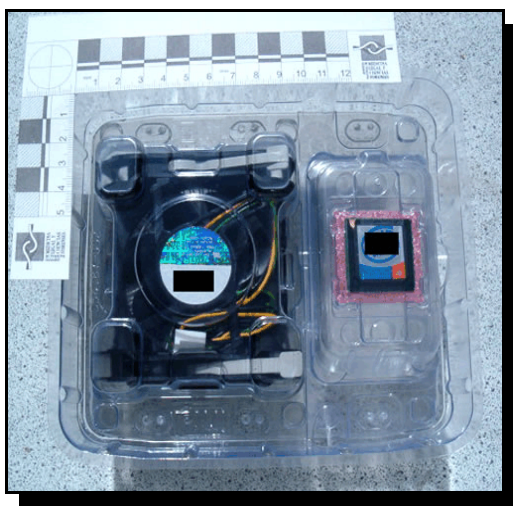


Photo 3



Photo 4

- INTELLIGENCE ALERT -

PSILOCYBIN MUSHROOM CHOCOLATES NEAR ROCHESTER, NEW YORK

The Monroe County Public Safety Laboratory (Rochester, New York) recently received a polydrug seizure including: A) Seven "Omega" logo tablets found to contain a mixture of methamphetamine, MDMA, caffeine, and procaine (not quantitated); B) Three generic 10 milligram oxycodone tablets; C) Seven bags of marijuana (total net mass 16 grams); and D) Eight home-made chocolate concoctions containing plant material, suspected to be psilocybin mushroom parts. The exhibits were seized by local law enforcement authorities at an outdoor rock concert located in a theme park west of Rochester (details sensitive). Each of the chocolates weighed approximately 30 grams, was approximately 4.5 centimeters in diameter by 2.5 centimeters thick, was wrapped in silver foil, and had a "SOLO" logo (similar to that found on commercial disposable cups) (see Photos 5 and 6).

The plant material was manually separated from the chocolate by crushing and carefully removing the visual pieces with tweezers. Each of the chocolates contained approximately 120 milligrams of plant material. The remaining crushed chocolate, which at this point did not contain any visible residue (as determined under stereoscopic 10x magnification), was not tested further.

The plant material was triturated with sodium bicarbonate and minimal water, then extracted twice with chloroform. The chloroform extracts were then dried down to a residue. Analysis of the residue by GC/MSD and TLC indicated psilocybin, psilocin, theobromine, and caffeine, confirming *Psilocybe* mushrooms. The psilocybin and psilocin were not quantitated, but were present at a moderate loading as compared with other mushroom submissions. Theobromine and caffeine are natural products in chocolate. This is the first submission of psilocybin mushroom chocolates to the laboratory.



Photo 5



Photo 6

- INTELLIGENCE ALERT -

BLOTTER ACID MIMICS (CONTAINING 4-BROMO-2,5-DIMETHOXY-AMPHETAMINE (DOB)) IN CONCORD, CALIFORNIA

The Contra Costa County Sheriff - Coroner's Office Forensic Services Division Laboratory (Martinez, California) recently received a small sheet of perforated paper divided into nine and a half squares, each 5 x 5 millimeters and imprinted with an ornate wheel-burst pattern surrounding a heart, suspected LSD "blotter acid" (see Photo 7). The exhibit was seized in Concord, California by the Concord Police (details unavailable; Concord is about 30 miles east of San Francisco). Preliminary screening by long-wavelength UV and *para*-dimethylamino-benzaldehyde (PDMBA), however, were both negative for LSD. Analysis of a methanolic extract by GC/MS instead identified 4-bromo-2,5-dimethoxyamphetamine (DOB), not formally quantitated but a moderate loading based on the TIC. This is the first submission of DOB, and is also believed to be the first submission of an LSD blotter acid mimic and the first submission of this unusual logo, to the laboratory.

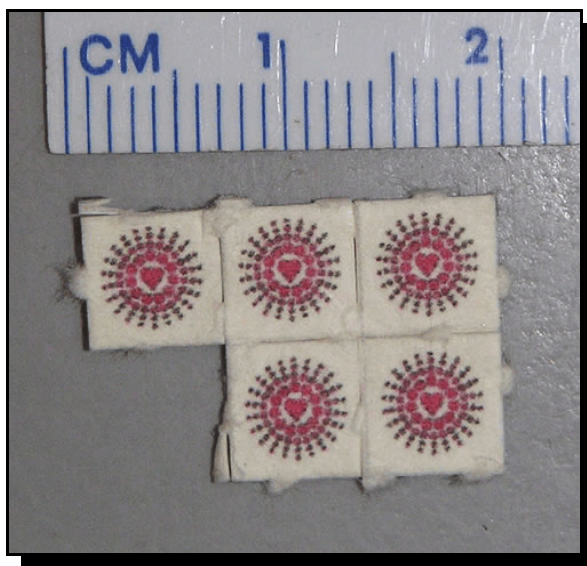


Photo 7

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- INTELLIGENCE ALERT -

LARGE SEIZURE OF TESTOSTERONE PROPIONATE AND TESTOSTERONE ENANTHATE IN EAU CLAIRE, WISCONSIN

The Wisconsin State Crime Laboratory in Wausau recently received a multi-exhibit submission of suspected steroids, including:

- A) Two crimp-sealed metal containers labeled "Testosterone Enanthate," both containing 995.4 grams of chunky white powder;
- B) A silver-colored bag labeled "Folic Acid," containing 999.7 grams of white chunky powder material (see Photo 8, next page);
- C) A silver-colored bag labeled "Folic Acid," containing 553.0 grams of yellow chunky material;
- D) An unlabelled glass jar containing 138.4 grams of white chunky powder material;
- E) A silver-colored bag labeled "Vitamin B6," containing 1001.3 grams of white powder;
- F) A silver-colored bag labeled "Vatamin B6" [sic], containing 843.6 grams of white powder;
- G) An unlabelled glass jar containing 92.5 grams of white powder; and
- H) Four unlabelled bottles and seven unlabelled syringes, containing a total of 111.9 grams of brownish liquid.

The exhibits were seized from a residence located in Eau Claire, pursuant to an extended investigation by the Wisconsin Division of Criminal Investigation - Narcotics Bureau (details sensitive). Items A, B, C, E, and F appeared to be commercially packaged. Analyses by color tests, GC/FID, and GC/MS identified testosterone enanthate in Items A, B, C, and D (total net mass 3,681.9 grams); testosterone propionate in Items E, F, and G (total net mass 1,937.4 grams); and a mixture of testosterone propionate and testosterone enanthate in Item H (quantitations not performed). Only Item A was consistent with its labelling (that is, testosterone enanthate). This is the first submission of this type to the laboratory, and is believed to be the largest steroid submission ever to the Wisconsin State Crime Laboratory system.

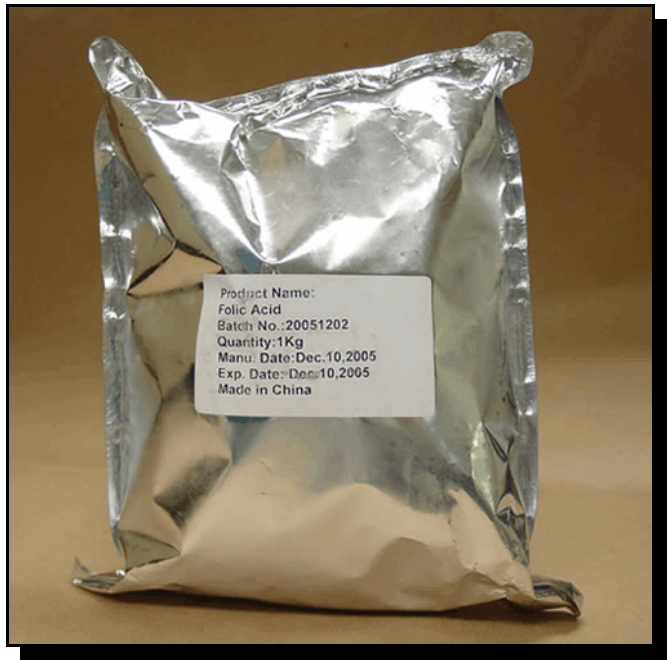


Photo 8

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- INTELLIGENCE ALERT -

4-CHLORO-2,5-DIMETHOXYAMPHETAMINE (DOC) AND 4-IODO-2,5-DIMETHOXYAMPHETAMINE (DOI) IN BERKLEY, MICHIGAN

The DEA North Central Laboratory (Chicago, Illinois) recently received a polydrug submission consisting of: A) 40.6 milliliters (40.4 grams) of a clear, colorless liquid (pH 9), marked as “D.O.I.”, presumed to be a solution of 4-iodo-2,5-dimethoxyamphetamine (DOI); B) Two resealable plastic bags containing in total 70.6 grams of fine, white powder, one marked as “I” and the other as “DOB”, the latter presumed to be 4-bromo-2,5-dimethoxyamphetamine (DOB); and C) Three resealable plastic bags containing in total of 14.5 grams of white powder mixed with small, off-white crystals/solid chunks, one marked as “DOC”, two marked with weights only, all presumed 4-chloro-2,5-dimethoxyamphetamine (DOC) (no photos). The exhibits were seized at a residence in Berkley, Michigan by agents from the DEA Detroit Division Office (no further details); Berkley is a suburb of Detroit. Analysis of the liquid by Watesmo paper, color testing, FTIR, GC/MS, and NMR indicated not DOI but rather an aqueous solution of DOC (suspected base, not quantitated). Analysis of the fine white powder (same instrumental techniques) indicated not DOB but rather DOI in both bags (suspected to be the hydrochloride salt; not quantitated but apparently high purity). Analysis of the off-white crystals/solid chunks (same instrumental techniques) confirmed DOC in all three bags (suspected to be the hydrochloride salt; not quantitated but apparently high purity); a possible DOC synthesis by-product was also noted. These are the first known submissions of DOC and DOI to the North Central Laboratory.

- INTELLIGENCE ALERT -

**BLACK TAR HEROIN CONCEALED INSIDE A DISASSEMBLED
ROCKING CHAIR IN WASHINGTON, DC**

The DEA Mid-Atlantic Laboratory (Largo, Maryland) recently received a disassembled rocking chair containing 10 separate plastic-wrapped packages of a black, tar-like substance concealed within hollowed-out sections, suspected black-tar heroin (see Photos 9 - 10). The exhibit originated in El Salvador, and was seized in Washington, DC by Immigration and Customs Enforcement personnel (no further details). Analysis of the substance (total net mass 389.9 grams) by GC, GC/MS, and IR confirmed 34 percent heroin hydrochloride, along with lidocaine and other expected alkaloids and typical heroin reaction by-products. Black-tar heroin exhibits are not commonly submitted to the Mid-Atlantic Laboratory. This is first submission of this smuggling technique to the Laboratory.



Photo 9

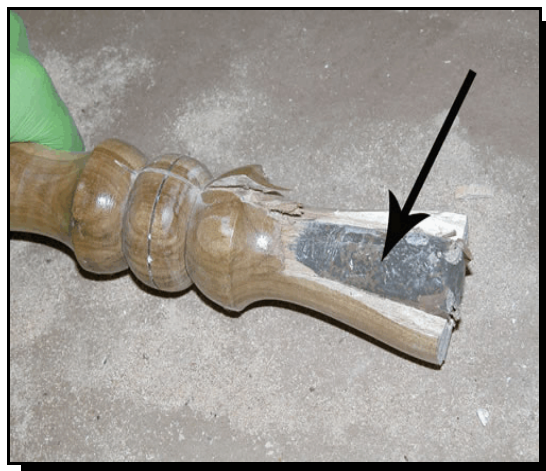


Photo 10

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- INTELLIGENCE BRIEF -

**INDUSTRIAL-SCALE METHAMPHETAMINE/MDMA
LABORATORY IN CIKANDE, INDONESIA**

In late 2005, Indonesian authorities raided a very large clandestine laboratory located in Cikande, Indonesia (located approximately 60 kilometers west of Jakarta). The operation was producing large-scale quantities of both methamphetamine and MDMA. Subsequently, two chemists from the DEA Special Testing and Research Laboratory (Dulles, Virginia) visited the site to document the laboratory setup and collect samples.

The site consisted of a large warehouse divided into multiple rooms with a variety of chemicals located throughout (see Photo 11, next page). The methamphetamine and MDMA production facilities were both located in the back of the warehouse, hidden behind a wall and accessed via a secret door.



Photo 11

Methamphetamine was being synthesized in two large reactors using ephedrine, red phosphorus, and iodine (see one of the reactors in Photo 12). Each batch started with 100 kilograms of *l*-ephedrine hydrochloride. After the reaction was complete, the methamphetamine base was isolated, converted to the hydrochloride, and recrystallized from a minimal amount of water, to yield approximately 75 kilograms of "Ice"-style *d*-methamphetamine hydrochloride. MDMA was also being synthesized in two large reactors (see Photo 13), using 3,4-methylenedioxyphenyl-2-propanone (MDP2P), methylamine, aluminum foil, and mercuric chloride, in methanol. Each batch started with 20 liters of MDP2P. After the reaction was complete, the MDMA base was isolated and distilled, converted to the hydrochloride, and crystallized in freezers to yield approximately 8 kilograms of MDMA hydrochloride. Additional materials and equipment indicated the large-scale production of MDMA (Ecstasy) tablets. The equipment included a 21-stage rotary tablet press capable of producing from 100,000 to 250,000 tablets in 8 hours. Also present were new and used commercial mixers and drying ovens. Tableting materials included cellulose, starch, dyes, and caffeine.



Photo 12



Photo 13

SELECTED REFERENCES

[Selected references are a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number.]

1. Agg KM, Craddock AF, Bos R, Francis PS, Lewis SW, Barnett NW. **A rapid test for heroin (3,6-diacetylmorphine) based on two chemiluminescence reactions.** *Journal of Forensic Sciences* 2006;51(5):1080. [Editor's Notes: Used a tris(2,2'-bipyridyl)ruthenium(III) reagent (sensitive for heroin) and potassium permanganate in aqueous acidic polyphosphate (sensitive for morphine and MAM). The tests were verified on 14 forensic samples. Contact: School of Life and Environmental Sciences, Deakin University, Geelong, Vic 3217, Australia.]
2. Apollonio LG, Whittall IR, Pianca DJ, Kyd JM, Maher WA. **Product ion mass spectra of amphetamine-type substances, designer analogues, and ketamine using ultra-performance liquid chromatography/tandem mass spectrometry.** *Rapid Communications in Mass Spectrometry* 2006;20(15):2259. [Editor's Notes: Compounds included amphetamine, methamphetamine, MDA, MDMA, PMA, 4-MTA, MBDB, and ketamine; analyses were completed in less than 4 minutes. Contact: National Centre for Forensic Studies, University of Canberra, Bruce ACT 2601, Australia.]
3. Caligiani A, Palla G, Bernardelli B. **GC-MS analysis of hashish samples: A case of adulteration with colophony.** *Journal of Forensic Sciences* 2006;51(5):1096. [Editor's Notes: Presents the title study on a sample seized in Italy (colophony is the acidic flux used for soldering). Contact: Dipartimento di Chimica Organica e Industriale, Università degli Studi di Parma, Parco Area delle Scienze 17A, 43100-Parma, Italy.]
4. Chen L, Luo G, Wang J, Liu K, Wang Y. **Recent advances in abused drug analysis.** *Yaowu Fenxi Zazhi* 2005;25(7):881. [Editor's Notes: A review. This article is written in Chinese. Contact: Department of Chemistry, Tsinghua University, Beijing, Peop. Rep. China 100084.]
5. Cheng JYK, Chan MF, Chan TW, Hung MY. **Impurity profiling of ecstasy tablets seized in Hong Kong by gas chromatography-mass spectrometry.** *Forensic Science International* 2006;162(1-3):87. [Editor's Notes: A study on the impurity profiles of ecstasy tablets from 89 seizures in Hong Kong from 2002 to early 2004. A total of 19 identified impurities were selected as markers for impurity profiling, and the data matrices were classified by hierarchical cluster analysis (HCA). Contact: Forensic Science Division, Ho Man Tin Government Offices, Hong Kong Government Laboratory, 88 Chung Hau Street, Hong Kong, SAR, Peop. Rep. China.]
6. Gosav S, Praisler M, Van Bocxlaer J, De Leenheer AP, Massart DL. **Class identity assignment for amphetamines using neural networks and GC-FTIR data.** *Spectrochimica Acta, Part A: Molecular and Biomolecular Spectroscopy* 2006;64(5):1110. [Editor's Notes: Presents a feasibility study of the title technique, including a variety of stimulant amphetamines, hallucinogenic amphetamines, and non-amphetamines (not specified in the Abstract). Contact: Department of Physics, Faculty of Sciences, University of Galati, Domneasca St. 43, Galati 6200, Rom.]
7. Keller T, Keller A, Tutsch-Bauer E, Monticelli F. **Application of ion mobility spectrometry in cases of forensic interest.** *Forensic Science International* 2006;161(2-3):130. [Editor's Notes:

A minor review; also reports the use of IMS for the rapid analysis of hallucinogenic mushrooms. Contact: Institute of Forensic Medicine, University of Salzburg, Ignaz-Harrer-Street 79, Salzburg 5020, Austria.]

8. Kim SC, Chung H, Lee SK, Park YH, Yoo YC, Yun Y-P. **Simultaneous analysis of d-3-methoxy-17-methylmorphinan and l-3-methoxy-17-methylmorphinan by high pressure liquid chromatography equipped with PDA.** *Forensic Science International* 2006;161(2-3):185. [Editor's Notes: The title compounds are better known as dextromethorphan and levomethorphan. The technique used a chiral column. 32 confiscated samples were analyzed. Contact: National Institute of Scientific Investigation, Chungbuk National University, 331-1 SinWol 7-dong, Yang-Chun Gu, Seoul 158-707, S. Korea.]
9. Kuila DK, Mukhopadhyay B, Lahiri SC. **Identification and estimation of methaqualone in toffee samples using gas chromatography - mass spectrometry, Fourier transform infrared spectrometry, and high-performance thin-layer chromatography.** *Forensic Science Communications* 2006;8(4):(No Page Numbers). [Editor's Notes: Presents the analysis of some Indian-brand toffee samples suspected to contain adulterants/hypnotic drugs and alcohol. Note that FSC is an on-line journal. Contact: Central Forensic Science Laboratory, Kolkata, India.]
10. Li T-L, Giang Y-S, Hsu J-F, Cheng S-G, Liu RH, Wang S-M. **Artifacts in the GC- MS profiling of underivatized methamphetamine hydrochloride.** *Forensic Science International* 2006;162(1-3):113. [Editor's Notes: GC/MS analysis of methamphetamine hydrochloride in methanol with old inlet liners at temperatures above 200 °C gave appreciable amounts of N,N-dimethylamphetamine and amphetamine. Contact: Department of Forensic Sciences, Taoyuan, Central Police University, Chinese Taipei, Taichung.]
11. Pavlic M, Libiseller K, Oberacher H. **Combined use of ESI-QqTOF-MS and ESI-QqTOF-MS/MS with mass-spectral library search for qualitative analysis of drugs.** *Analytical and Bioanalytical Chemistry* 2006;386(1):69. [Editor's Notes: 319 drugs (therapeutic and illicit) were analyzed. The resulting spectral library was successfully applied to the characterization of 39 forensic casework samples. Contact: Institute of Legal Medicine, Innsbruck Medical University, Muellerstrasse 44, Innsbruck 6020, Austria.]
12. Ricci C, Chan KLA, Kazarian SG. **Combining the tape- lift method and Fourier transform infrared spectroscopic imaging for forensic applications.** *Applied Spectroscopy* 2006;60(9):1013. [Editor's Notes: The sensitivity limits of FT-IR imaging using 3 different ATR crystals (Ge, ZnSe, and diamond) in 3 different optical arrangements for the detection of model systems of ibuprofen and paracetamol are presented. The technique was applied to detection of traces of heroin. Contact: Department of Chemical Engineering, Imperial College London, London SW7 2AZ, UK.]
13. Staples, Edward J.; Viswanathan, Shekar. **Detection of contraband and drugs of abuse using an ultrafast SAW/GC vapor analyzer.** *AICHE Annual Meeting, Conference Proceedings, Cincinnati, OH, United States, Oct. 30-Nov. 4, 2005.* [Editor's Notes: Presents the title technique. Contact: Electronic Sensor Technology, Newbury Park, CA 91320.]
14. Toonen M, Ribot S, Thissen J. **Yield of illicit indoor cannabis cultivation in the Netherlands.** *Journal of Forensic Sciences* 2006;51(5):1050. [Editor's Notes: Presents a formula for determining a total expected yield of mature female flower buds (sinsimella) from indoor grow operations, regardless of maturity at the time of seizure. Contact: Plant Research International, Wageningen-UR, PO Box 16, 6700 AA Wageningen, The Netherlands.]

15. Wood M, Laloup M, Samyn N, del Mar Ramirez Fernandez M, de Bruijn EA, Maes RAA, De Boeck G. **Recent applications of liquid chromatography-mass spectrometry in forensic science.** *Journal of Chromatography A* 2006;1130(1):3. [Editor's Notes: A survey of applications reported from 2002 to 2005; focuses on trace analysis, including drugs (not specified in the Abstract). Contact: Waters Corporation, Micromass UK Ltd, Atlas Park, Simonsway, MS Technologies Centre, Wythenshawe, Manchester M22 5PP.]

Additional References of Possible Interest:

1. Balogh MP. **DESI, IMS, and resurgent challenges to HPLC-MS.** *LCGC North America* 2006;24(1):46. [Editor's Notes: An overview. Contact: LC-MS Technology Development, Waters Corp., Milford, MA (zip code not provided).]
2. Rasmussen A, Deckert V. **SERS surface enhanced Raman scattering.** *G.I.T. Laboratory Journal, Europe* 2006;10(1):12. [Editor's Notes: A review. Contact: ISAS - Institute for Analysis Sciences, Dortmund, Germany.]
3. Van Thuyne W, Van Eenoo P, Delbeke FT. **Nutritional supplements: Prevalence of use and contamination with doping agents.** *Nutrition Research Reviews* 2006;19(1):147. [Editor's Notes: A review. Contact: Doping Control Laboratory, Department of Clinical Biology, Microbiology and Immunology, Faculty of Medicine and Health Sciences, Ghent University - UGent, Zwijnaarde B-9052, Belg.]

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***Microgram* Editor Email Address Change Coming!**

Effective January 1st, 2007, the *Microgram* Editor's email address will change from microgram_editor-at-mailsnare.net to: microgram-2007-at-mailsnare.net This change has been necessitated by the ever-increasing numbers of spam emails being received at the microgram_editor-at-mailsnare.net address. An automated response will be maintained on the microgram_editor-at-mailsnare.net address for the first three months of CY 2007.

Please make a note of this change. Note that similar email address changes can be anticipated on the first of each year, substituting the appropriate year in the address.

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Until recently, few people in the general public had more than a cursory understanding of *Computer Forensics*. And therefore (and not surprisingly), there was no defined career track to a computer forensics position. Most examiners in law enforcement organizations obtained their positions by being the right person in the right place at the right time. Usually they were the only person in the office who had some kind of formal computer science education or training, or who “dabbled” in computer hardware and software more or less as a hobby - and so were called upon when seized computers began to be submitted as potential evidence.

From a personal standpoint, I knew about computers, but until late 1997 I had never heard of computer forensics. It was a job announcement for a position in the U.S. Drug Enforcement Administration’s Computer Forensics Program that first caught my attention. Once I was hired, most of my knowledge was acquired by observing computer forensics examiners who were already working on casework, and then by on-the-job training. At that time, the forensic tool of choice was Safeback®, and a typical hard drive was only megabytes in size. To put this in perspective, consider that there are now dozens of forensic tools, and it’s hard to find a hard drive that is smaller than 80 gigabytes (in fact, an examiner could encounter a 750 gigabyte hard drive).

My entry experiences were typical. In the mid-1990’s, computer forensics was infrequently spoken of within the Computer Science (CS), Information Technology (IT), or law enforcement communities. If you had done an Internet search on the phrase “Computer Forensics” in 1995, you probably would have gotten only a few hits (if any!) Today, you will get over two million hits. Computer forensics is everywhere now, and law enforcement, judicial, commercial, and private sector organizations are all looking for experienced examiners.

While preparing this column, I went on-line to see if there were educational institutions that offered courses or degrees in Computer Forensics. Frankly, I wasn’t expecting much – but to my surprise, I found quite a few. Here are some of them* (but there are many more that are not listed here):

- *The University of New Haven* (Connecticut) – offers a graduate certificate in computer forensics, and was the first institution to offer it.
- *The University of Central Florida* (Florida) – offers a graduate certificate in computer forensics, and was the second institution to offer it.
- *The George Washington University* (Washington, DC) – offers a Master of Arts in Criminal Justice, with an emphasis in high-tech crime.
- *Marshall University* (West Virginia) – offers a graduate certificate program, with an emphasis in computer forensics.

A search on the term “Computer Forensics Certification” gives, for example*:

- Certified Information System Security Professional (CISSP)
- Certified Forensic Computer Examiner (CFCE)
- Certified Computer Examiner (CCE)
- A+
- Net+ - Network Certification
- MCSE - Microsoft Certified System Engineer

Similarly, a search on the term “Computer Forensics Training” gives, for example*:

- New Technologies, Inc. (NTI) Automated Forensic Software
- AccessData – Forensic Tool Kit (FTK)
- Guidance Software – Encase
- Mares & Company – Advance Computer Forensic Training Seminars
- Paraben
- ASRDATA
- IRS (Law Enforcement Only) – ILook/ILook Imager

Finally, a few websites that provide information on training opportunities in Computer Forensics include, for example*:

- www.compuforensics.com/training.htm
- www.infosecinstitute.com
- www.digitalintelligence.com
- www.dmares.com/maresware/training
- www.encase.com
- www.cybersecurityinstitute.biz/training
- www.nw3c.org
- www.dfrws.org

In conclusion, it is much easier for someone to get into the field of Computer Forensics today versus even just five years ago. The opportunities are almost limitless. It takes time to explore all the options, but time well spent.

Questions or comments? E-mail: [Steven.L.Carter -at- usdoj.gov](mailto:Steven.L.Carter-usdoj.gov)

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[* Note: Listing in this Column does not imply endorsement by the U.S. Government.]