Name and address of Centre

Andrology Centre Semmelweis University, Budapest
CERTIFIED TRAINING CENTER OF THE EUROPEAN ACADEMY OF ANDROLOGY, BUDAPEST
1082 BUDAPEST, KORANYI S. U. 2.

The Centre is a Single Andrology Centre

History of the Centre

The first pioneer and founder of andrology in Budapest was Prof. Jenő Molnár, starting an andrology outpatient clinic as well as a sperm lab in 1947. He was also one of the founder of European andrological acitivities. Later Prof. G.K. Papp was the head of the Centre, andrological research was also active with Associate Prof. G. Corradi. In the beginning of the 1990'-ies Z. Kopa joined the Centre. An Andrology and Urology Department of the University was established in 1999 with the directorship of G.K. Papp. The Hungarian governmental medical reforms changed the structure of the universities and hospitals, the unit was working as a part of the National Medical Centre.

Originally the Budapest EAA Centre was accredited in the National Health Centre in Budapest in 2005. Due to the governmental medical reforms the re-accreditation was performed in 2011 with 2 sites: Semmelweis University Andrology Centre (Dept. of Urology) and the Military Hospital Medical Centre Andrology Unit. Since 2022 the Centre works as a single site at the Semmelweis University, located in the Department of Urology (Director: Prof. P. Nyirády), Director: Z. Kopa Associate Professor.

Organisation

The Centre has a strong connection with the Assisted Reproductive Centre of the University, where our centre director acts as andrology supervisor.

Staff: three specialized (male) andrologists with PhD degree, one specialised (female) andrologist in PhD training program, one (female) PhD student, and one assistant nurse. In the IVF Centre: one specialised (male) andrologist, two andrology based biologists, and one assistant nurse. Two andrologists passed the EAA Clinical Andrologist exam.

The Centre is a permanent training centre for the Hungarian Andrology specialization; recently two (female) specialised urologists have been trained for 2 years, always two urologist residents are also under training in 2-month sessions.

The centre works with a well-equipped WHO Andrology Laboratory, and has additional access to laboratories of the University Medical Laboratory and two Pathology Institutes. The Centre is an Andrology Microsurgical Centre as well, not only in Hungary, but in the Central-Eastern region of Europe. A modern Zeiss operative microscope is located in the specialized operating theatre, and an additional brand new modern Zeiss operative microscope has been also installed in the Assisted Reproduction Centre, close connected with the well-equipped Embryology and Cryo Lab.

Clinical training programme

Our clinical training program comprises courses in basic science and sperm analísis at the WHO Andrology fertility laboratory, national and international microsurgical training, and assisted reproduction.

Current research projects

1. Microsurgical reconstructions and sperm retrieval techniques in male infertility

Prediction of sperm retreival in non-obstructive azoospermia

a. using arteficial intelligence

b. the role of share-wawe elastography

2. The role of DNA fragmentation in male fertility

a. influencing factors

b. effect of the interventions

5. Testis sparing microsurgery of non-palpable testicular masses

6. The role of testicular microlithiasis in Testicular Dysgenesis Syndrome

Andrology-related meetings and courses organized in the last 5 years

International level:

European Congress of Andrology (ECA 2018), Budapest

EAA Budapest School – annual training course for andrologists organized in Budapest since 2019

International Educational Course in andrological microsurgery - 2017

EAA Budapest Microsurgery Week - 2023

National level:

National Andrology Congress – organized annually

Androkurzus – annual educational course for the training in WHO semen analysis techniques

Type of Centre

University	x
University Hospital	x
Private Centre	

Other (please specify) _____

1. Director Zsolt Kopa M.D., Ph.D., M.Sc.
EAA EC member
ESAU Board member
Clinical Andrologist
Andrologist (Hungarian Specalisation)

2. Present Staff *(Senior Scientists)*

1) Name Peter Nyirady
Degree M.D., D.Sci.
Speciality Urologist, Andrologist

Academician [ ] Affiliated Member [ ] Hung. Androl. Spec. [x]

2) Name Peter Riesz
Degree MD, PhD
Speciality Urologist, Andrologist, Medical Oncologist

Academician [ ] Affiliated Member [ ] Hung. Androl. Spec. [x]

3) Name Judit Vargha
Degree M.D.
Speciality Urologist, Andrologist, EAA Clinical Andrologist

Academician [ ] Affiliated Member [x] Hung. Androl. Spec. [x]

4) Name Tamas Takacs
Degree M.D.
Speciality Urologist, Andrologist, EAA Clinical Andrologist

Academician [ ] Affiliated Member [x] Hung. Androl. Spec. [x]

5) Name Aniko Bata
Degree M.D.
Speciality Urologist, Trainee in Andrology

6) Name Erzsebet Hajdu-Toth

Degree M.D.
Speciality Urologist, Trainee in Andrology

Insert any additional staff below *(if required)*

MD/Biologists/Chemists

1) Name
Degree
Speciality
Full time/part time

Academician ☐ Affiliated Member ☐ Clinical Andrologist ☐

Insert any additional staff below *(if required)*

PhD Students

1) Name Anett Szabo M.D.
2) Name Julia Acs M.D.
3) Name

Nurses

1) Name Ildiko Kedves Androl. Assistant
2) Name
3) Name

Laboratory Technicians

1) Name
2) Name
3) Name

Extra Personnel

1) Name Anna Gutengeber - Psychologist
2) Name
3) Name

Insert any additional staff below *(if required)*

For each staff category please specify changes (increased or decreased since last EAA site visit

Physicians

Unchanged ☐ Increased **x** Decreased ☐

Please specify Please specify the Centre "B" was closed last year

Nurses

Unchanged **x** Increased ☐ Decreased ☐

Please specify Please specify

Laboratory Technicians

Unchanged [x] Increased [ ] Decreased [ ]

Please specify _____ Please specify _____

Administrative Personnel

Unchanged [x] Increased [ ] Decreased [ ]

Please specify _____ Please specify _____

Overall comment – is personnel staff enough for centres activities?

Yes [x] No [ ] Further comment _____

4. Clinical Activity

A. *Outpatients: Consultations per year in the last 3 years*

	2020	**2021**	**2022**
New patients	959	805	706
Controls	692	763	1070
ARC total (new+ctrl)	845	985	1032

Type of patients in the last years (%)	**2020**	**2021**	**2022**
Infertility	879	733	741
Erectile dysfunction	155	174	255
Hypogonadism	358	327	322
Klinefelter	25	13	18
Varicocele	66	72	96
Cryptorchidism	NA	NA	NA
Male sex accessory gland infections			
Testicular tumours	91	86	127
Disorders of gender identity	0	0	0
Other			

B. Ultrasound (testis, penile, prostate)

	2020	**2021**	**2022**
Scrotal Duplex/ Patient No.	257	266	317
Small pelvis/ Patient No.	52	54	48
IVF scrotal	239	304	351

C. Andrological surgery procedures

	2020	2021	2022
Testicular biopsies	2	4	4
micro TESE	65/15 80	46/19 64	55/34 89
Varicocele ligation Microsurgical	2	1 / 2 3	14/4 18
Vasectomy			
Vaso-vasostomy Microsurgical	3	1	3
Microsurgical tubulo–vasostomy	3	1	3
MESA	6	8	7
Organ sparing microsurgery non palpable intratesticular masses	3	10	6
Microsurgery total			

	2020	2021	2022
Semen analyses	368	323	377
IVF	1521	1915	1851
total	1889	2238	2228

***Semen analyses in the last Pre-Covid year (2019): 495**

5. Andrology laboratory activity

Sperm banking donors	Yes		No	x
Sperm banking cancer patients	Yes	**x**	No	

If yes:

	2020	2021	2022
Number of samples	91/7 B	288/32 B	376/51 B
Cryobank	33/57 B	31/12 B	60/25 B

*B = testicular/epididymal sperms from microsurgical sperm retrievals

5. C. Hystopathologial evaluation of biopsies — Yes [x] No [ ]

5. D. Reproductive Hormones Assays — Yes [x] No [ ]

If yes please specify type of assays and number of samples in the last year
FSH, LH, Prolaktin, Testosteron, Inhibin B, AMH

5. E. Y chromosome microdeletions according to EAA/EMQN guidelines — Yes [x] No [ ]

If yes number of tests in the past year: 60

Participation to the EAA quality control scheme? — Yes [x] No [ ]

If no, specify if available in another lab of the same hospital — Yes [ ] No [ ]

Blood karyotyping — Yes [x] No [ ]

If no, specify if available in another lab of the same hospital — Yes [ ] No [ ]

Other genetic tests (please specify)

6. Collaborations with other Clinical Units of the University/Hospital

IVF Unit — Yes [x] No [ ]
If yes please specify: ART Centre of the Semmelweis University Andsrology supervision, strong collaboration

Urology Clinic — Yes [x] No [ ]

Endocrine Clinic — Yes [x] No [ ]

Genetics Lab/Unit — Yes [x] No [ ]

Paediatric Unit — Yes [x] No [ ]

Central Hospital Laboratory — Yes [x] No [ ]

Private Centres — Yes [x] No [ ]

If yes please specify: Private labs regarding sperm functional tests

7. Clinical teaching activity

Duration of training (years): 2

	Number
A: Trainees in the last five years	9
B: Trainees who passed EAA-ESAU\exam for Clinical Andrologist in the last 5yrs	8
C: Trainees working in the centre preparing to pass the EAA-ESAU examination	3
D: Ph D Students	1
E: Medical Students	4
F: Other students	1

8. Formal Andrology teaching program Yes x No

If yes: specify duration (years/months): Years Months

	Hours of formal teaching per year	Professional training (weeks/months)
Medical Students Hungarian/ English/ German language	4 hour/week	28 weeks
Ph D Students	continous	continous
Post Graduate students	continous	continous
Trainees	continous	continous
Other degrees (please specify) – nurses	12 weeks	

9. Research Activity

Please list the main papers in peer review journals in the last 3 years with I.F. in a separate file.

See separate file

10. Research Funding

Please specify the amount of available funds in the last 3 years and their source (Government, European Union, University, Local Government, Pharmaceutical Industries, Banks, Foundations….)

Year 0

Total amount (€)

Funding Source(s)

Insert any additional funding below if required

11. Please report the main improvements of the Centre following the (last) EAA site visit

Laboratory Activity

IMPROVING
Improvement in genetic diagnostics
Introduction of genetic counselling

Research Activity

STABLE

Recent topics:
DNA fragmentation causes and intervention efficacy
Artificial intelligence in the prediction of Sperm Retrieval Rate in NOA microTESE
Microsurgical testis sparing surgery in non-palpable testicular tumors
TDS – the role of testicular microlithiasis

Teaching

HIGH GRADE

12. Overall considerations by the Centre Director

A. Continuous improvement [X] Is stable [ ] Has problems [ ]

If 'has problems', please specify

13. Anticipated future changes in the Centre

Higher research collaboration

Centre 1.

Date 15.02.2023 Director's signature

Publications with IF since 2019

1. Anett Szabo, Szilard Vancsa, Peter Hegyi, Alex Varadi, Attila Forintos, Teodora Filipov, Julia Acs, Nandor Acs, Tibor Szarvas, Peter Nyirady and Zsolt Kopa

Lifestyle-, environmental-, and additional health factors associated with an increased sperm DNA fragmentation: a systematic review and meta-analysis

Reprod Biol Endocrinol. 2023 Jan 18;21(1):5. doi: 10.1186/s12958-023-01054-0.

2. Keszthelyi M, Bakos M, Szabó I, Török M, Lőczi L, Madaras L, Ács N, Várbíró S.

Molar pregnancy in postmenopause

Orv Hetil. 2023 Feb 19;164(7):273-277. doi: 10.1556/650.2023.32704. Print 2023 Feb 19.

3. Réka Eszter Sziva, Júlia Ács, Anna-Mária Tőkés , Ágnes Korsós-Novák, György L. Nádasy,

Nándor Ács, Péter Gábor Horváth, Anett Szabó, Haoran Ke, Eszter Mária Horváth, Zsolt Kopa

and Szabolcs Várbíró

Accurate Quantitative Histomorphometric-Mathematical Image Analysis Methodology of Rodent Testicular Tissue and Its Possible Future Research Perspectives in Andrology and Reproductive Medicine

Life (Basel). 2022 Jan 27;12(2):189. doi: 10.3390/life12020189.

4. Fazekas T, Széles ÁD, Teutsch B, Csizmarik A, Vékony B, Váradi A, Kói T, Lang Z, Ács N, Kopa Z, Hegyi P, Hadaschik B, Grünwald V, Nyirády P, Szarvas T.

Therapeutic sensitivity to standard treatments in BRCA positive metastatic castration-resistant prostate cancer patients-a systematic review and meta-analysis.

Prostate Cancer Prostatic Dis. 2022 Dec 12. doi: 10.1038/s41391-022-00626-2.

5. Várbíró S, Takács I, Tűű L, Nas K, Sziva RE, Hetthéssy JR, Török M.

Effects of Vitamin D on Fertility, Pregnancy and Polycystic Ovary Syndrome-A Review.

Nutrients. 2022 Apr 15;14(8):1649. doi: 10.3390/nu14081649.

6. Szabó B, Németh K, Mészáros K, Krokker L, Likó I, Saskői É, Németh K, Szabó PT, Szücs N, Czirják S, Szalóki G, Patócs A, Butz H.

Aspirin Mediates Its Antitumoral Effect Through Inhibiting PTTG1 in Pituitary Adenoma.

J Clin Endocrinol Metab. 2022 Nov 23;107(11):3066-3079. doi: 10.1210/clinem/dgac496.

7. Sipos L, Szücs N, Várallyay P.

Pituitary apoplexy: Surgical or conservative management?

Orv Hetil. 2021 Sep 19;162(38):1520-1525. doi: 10.1556/650.2021.32209.

8. Sonkodi B, Kopa Z, Nyirády P.

Post Orgasmic Illness Syndrome (POIS) and Delayed Onset Muscle Soreness (DOMS): Do They Have Anything in Common?

Cells. 2021 Jul 23;10(8):1867. doi: 10.3390/cells10081867.

9. Tarszabó R, Bányai B, Ruisanchez É, Péterffy B, Korsós-Novák Á, Lajtai K, Sziva RE, Gerszi D, Hosszú Á, Benkő R, Benyó Z, Horváth EM, Masszi G, Várbíró S.

Influence of Vitamin D on the Vasoactive Effect of Estradiol in a Rat Model of Polycystic Ovary Syndrome.

Int J Mol Sci. 2021 Aug 30;22(17):9404. doi: 10.3390/ijms22179404.

10. Lajtai K, Tarszabó R, Bányai B, Péterffy B, Gerszi D, Ruisanchez É, Sziva RE, Korsós-Novák Á, Benkő R, Hadjadj L, Benyó Z, Horváth EM, Masszi G, Várbíró S.

Effect of Vitamin D Status on Vascular Function of the Aorta in a Rat Model of PCOS.

Oxid Med Cell Longev. 2021 Mar 18;2021:8865979. doi: 10.1155/2021/8865979. eCollection 2021.

11. Agarwal A, Finelli R, Selvam MKP, Leisegang K, Majzoub A, Tadros N, Ko E, Parekh N, Henkel R, Durairajanayagam D, Colpi GM, Cho CL, Sallam HN, Park HJ, Saleh R, Micic S, Ambar RF, Zini A, Tremellen K, Alvarez JG, Palani A, Arafa M, Gava MM, Jindal S, Amar E, Kopa Z, Moein MR, Busetto GM, Sengupta P, Kavoussi P, Maldonado I, Fikri J, Borges E, Martinez M, Bojovic D, Rajmil O, Aydos K, Parekattil S, Marmar JL, Sefrioui O, Jungwirth A, Peña MGR, Cordts EB, Elbardisi H, Mostafa T, Sabbaghian M, Sadighi Gilani MA, Morimoto Y, Alves MG, Spasic A, Kenic U, Ramsay J, Akande EO, Oumeziane A, Dozortsev D, Chung E, Bell EG, Allegra A, Tanos V, Fiadjoe M, Gurgan T, Abou-Abdallah M, Al-Rumaih H, Oborna I, Arab H, Esteves S, Amer M, Kadioglu A, Yuzko O, Korsak V, Shah R.

A Global Survey of Reproductive Specialists to Determine the Clinical Utility of Oxidative Stress Testing and Antioxidant Use in Male Infertility.

World J Mens Health. 2021 Jul;39(3):470-488. doi: 10.5534/wjmh.210025. Epub 2021 Apr 1.

12. Keszthelyi M, Gyarmathy VA, Kaposi A, Kopa Z.

The potential role of central obesity in male infertility: body mass index versus waist to hip ratio as they relate to selected semen parameters.

BMC Public Health. 2020 Mar 12;20(1):307. doi: 10.1186/s12889-020-8413-6.

13. Kopa Z, Keszthelyi M, Sofikitis N.

Administration of Antioxidants in the Infertile Male: When it may have a Beneficial Effect?

Curr Pharm Des. 2021;27(23):2665-2668. doi: 10.2174/1381612826666200303115552.

14. Corona G, Minhas S, Giwercman A, Bettocchi C, Dinkelman-Smit M, Dohle G, Fusco F, Kadioglou A, Kliesch S, Kopa Z, Krausz C, Pelliccione F, Pizzocaro A, Rassweiler J, Verze P, Vignozzi L, Weidner W, Maggi M, Sofikitis N.

Sperm recovery and ICSI outcomes in men with non-obstructive azoospermia: a systematic review and meta-analysis.

Hum Reprod Update. 2019 Nov 5;25(6):733-757. doi: 10.1093/humupd/dmz028.

15. Zucchi A, Costantini E, Scroppo FI, Silvani M, Kopa Z, Illiano E, Petrillo MG, Cari L, Nocentini G.

The first-generation phosphodiesterase 5 inhibitors and their pharmacokinetic issue.

Andrology. 2019 Nov;7(6):804-817. doi: 10.1111/andr.12683. Epub 2019 Jul 26.

16. Omar MI, Pal RP, Kelly BD, Bruins HM, Yuan Y, Diemer T, Krausz C, Tournaye H, Kopa Z, Jungwirth A, Minhas S.

Benefits of Empiric Nutritional and Medical Therapy for Semen Parameters and Pregnancy and Live Birth Rates in Couples with Idiopathic Infertility: A Systematic Review and Meta-analysis.

Eur Urol. 2019 Apr;75(4):615-625. doi: 10.1016/j.eururo.2018.12.022. Epub 2019 Jan 8.

17. Shimon I, Badiu C, Bossowski A, Doknic M, Dzivite-Krisane I, Hána V, Kollerova J, Natchev E, Pfeifer M, Szũcs N, Hey-Hadavi J, Gomez R.

Adult growth hormone deficiency in CEE region: Heterogeneity of the patient pathway.

Growth Horm IGF Res. 2019 Jun-Aug;46-47:44-49. doi: 10.1016/j.ghir.2019.06.001. Epub 2019 Jun 7.

18. Lajtai K, Nagy CT, Tarszabó R, Benkő R, Hadjadj L, Sziva RE, Gerszi D, Bányai B, Ferdinandy P, Nádasy GL, Giricz Z, Horváth EM, Várbíró S.

Effects of Vitamin D Deficiency on Proliferation and Autophagy of Ovarian and Liver Tissues in a Rat Model of Polycystic Ovary Syndrome.

Biomolecules. 2019 Sep 10;9(9):471. doi: 10.3390/biom9090471.

19. Németh K, Darvasi O, Likó I, Szücs N, Czirják S, Reiniger L, Szabó B, Krokker L, Pállinger É, Igaz P, Patócs A, Butz H.

Comprehensive analysis of circulating microRNAs in plasma of patients with pituitary adenomas.

J Clin Endocrinol Metab. 2019 May 21:jc.2018-02479. doi: 10.1210/jc.2018-02479. Online ahead of print.

20. Krokker L, Nyírő G, Reiniger L, Darvasi O, Szücs N, Czirják S, Tóth M, Igaz P, Patócs A, Butz H.

Differentially Expressed miRNAs Influence Metabolic Processes in Pituitary Oncocytoma.

Neurochem Res. 2019 Oct;44(10):2360-2371. doi: 10.1007/s11064-019-02789-2. Epub 2019 Apr 3.

21. Németh K, Darvasi O, Likó I, Szücs N, Czirják S, Reiniger L, Szabó B, Kurucz PA, Krokker L, Igaz P, Patócs A, Butz H.

Next-generation sequencing identifies novel mitochondrial variants in pituitary adenomas.

J Endocrinol Invest. 2019 Aug;42(8):931-940. doi: 10.1007/s40618-019-1005-6. Epub 2019 Jan 25.

22. Maida Bada, Francesco Berardinelli, Peter Nyiràdy, Judith Varga, Pasquale Ditonno, Michele Battaglia, Paolo Chiodini, Cosimo De Nunzio, Giorgia Tema, Alessandro Veccia, Alessandro Antonelli, Luca Cindolo, Claudio Simeone, Stefano Puliatti, Salvatore Micali, Luigi Schips

Adherence to the EAU guidelines on Penile Cancer Treatment:

European, multicentre, retrospective study

Journal of Cancer Research and Clinical Oncology (2019) 145:921–926, https://doi.org/10.1007/s00432-019-02864-9