

## Fertilitetsklinikken

### Klinikchef

Overlæge Helle Olesen Elbæk

### Forskningsansvarlig

Professor dr.med. Peter Humaidan  
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E-mail: peter.humaidan@midt.rm.dk

### Ansatte med dr.med.-grad

Humaidan P, professor, dr.med. (Aarhus Universitet).

### Ansatte med ph.d.-grad

Esteves S, adjungeret professor, ph.d. (Aarhus Universitet).  
Laursen RJ, afdelingslæge, ph.d.  
Polyzos N, adjungeret professor, ph.d. (Aarhus Universitet).

### Ansatte med anden videnskabelig grad

Mikkelsen AT, study nurse, m.sc. klinisk sygepleje.  
Povlsen BB, laboratorieleder, m.sc. embryology.

### Lektorer

Alsbjerg B, ekstern lektor, Aarhus Universitet.

### Ph.d.-studerende

Lise Thomsen  
The impact of mid-luteal progesterone on the reproductive outcome of in vitro fertilization therapy.  
Aarhus Universitet.  
Hovedvejleder: **Peter Humaidan**.

Louise Svenstrup

Assisteret reproduktion og den tidlige luteal fase – ovulationsinduktionens påvirkning af den endo-krine profil.  
Syddansk Universitet, Odense.  
Hovedvejleder: **Peter Humaidan**.

Thor Haahr

The microbiome of infertile couples and its effect on their reproductive outcome.  
Aarhus Universitet.  
Hovedvejleder: **Peter Humaidan**.  
Medvejledere: Jørgen Skov Jensen, Niels Ulbjerg.

### Vejledning - eksterne ph.d.-studerende

A Three-Dimensional Cell Culture Model for Regeneration of Oviduct Mucosae using Air-Liquid Interfaces.  
Nadira Salah.  
University of Glasgow.  
Medvejleder: **Peter Humaidan**.

AMOR - Acoustic Monitoring of Obstetric Risks.  
Diana Kjær Thing Riknagel.  
Aalborg Universitet.  
Medvejleder: **Peter Humaidan**.

Celiac disease and infertility among men and women in Denmark.  
Louise Bang Grode, HE Horsens.  
Aarhus Universitet.  
Medvejleder: **Peter Humaidan**.

Terapeutisk endometri abradering.  
Mia Steengaard Olesen, IVF klinikken, HE Horsens.  
Aarhus Universitet.  
Medvejleder: **Peter Humaidan**.

### Præsentation af afdelingens vigtigste forskningsaktivitet

2017 startede med en ansættelse af Sandro Esteves, Brasilien som adjungeret professor og der blev i juli afholdt tiltrædelsesforelæsning. Året har været præget af stor aktivitet og stort fokus på forskningen. Klinikken har været involveret i mange projekter, de fleste forsker-initierede, men også projekter initieret af industrien. Vi har fået tilknyttet flere yngre forskere, der er godt i gang med forskellige opgaver og forskningsprojekter. Der er mange projekter i gang og alle gør en kæmpestor indsats og bidrager til deres gennemførelse. Der har været stor deltagelse fra forskellige faggrupper i faglige kongresser såvel nationalt som internationalt. Afdelingen har i slutningen af året arbejdet på en ansøgning om at blive Universitetsklinik og er netop i færd med at lægge sidste hånd på denne.

### Igangværende forskningsprojekter

#### Forsker-initierede projekter

- A double-blind, placebo-controlled multicenter trial on the effect of clindamycin and probiotic on the reproductive outcomes of IVF patients with abnormal vaginal microbiota.  
**Haahr T**, supervised by **Humaidan P**.

- A multicentre randomized trial of a “ Freeze all and transfer later” versus conventional “Fresh embryo transfer” strategy for assisted repro-ductive technology (ART) in women with a regular cycle.  
Pinborg A, **Humaidan P**.
- Betydningen af mid-lutealt progesteron og preimplantations faktor (PIF) for opnåelse af succesfuld implantation og on-going graviditet efter IVF/ICSI behandling.  
Thomsen L.
- Optimizing IVF by culture in the Embryo-Scope™ time-lapse system.  
Povlsen BB.
- Substitueret fryseprotokol med GnRH-agonist, der er kontrolleret, randomiseret multicenter-studie med flere danske klinikker involveret.  
Alsbjerg B.
- Terapeutisk endometrie abradering.  
Olesen MS, **Humaidan P**, **Elbaek H**.
- Testosterone TRANSdermal gel for poor ovarian responders trial.  
**Polyzos N**, **Humaidan P**.
- The exogenous progesterone free luteal phase after GnRHa trigger – a randomized controlled pilot study in high-responder IVF patients.  
Humaidan P.
- The exogenous progesterone free luteal phase after GnRHa trigger – a randomized controlled pilot study in normo-responder IVF patients.  
Humaidan P.
- The microbiome of infertile couples and its effect on the reproductive outcomes – a prospective cohort study.  
**Haahr T**, supervised by **Humaidan P**.

#### Medicinalindustri-initierede projekter.

- A phase IV, single-blinded, prospective, randomized, controlled, multicenter, study to compare clinical outcomes of GERI + timelapse system with conventional embryo culture and assessment system.  
Povlsen BB.
- Implant 2 – et fase 3 dobbeltblinded, randomiseret, placebo-kontrolleret studie med det formål at undersøge sikkerheds effekten af en enkelt dosis oralt nolasiban til forbedring af graviditetsfrekvensen i IVF /ICSI med oplægning på dag 3 eller 5.  
**Humaidan P**, **Elbaek H**.

## Publikationer

### Artikler – Peer reviewed

- 1) **Alsbjerg B**, **Elbaek HO**, **Laursen RJ**, **Povlsen BB**, **Haahr T**, Yding Andersen C, **Humaidan P**.  
Bio-equivalent doses of recombinant HCG and recombinant LH during ovarian stimulation result in similar oestradiol output: a randomized controlled study.  
Reprod Biomed Online 2017 Aug;35(2):232-238.
- 2) Benmachiche A, Benbouhedja S, Zoghmar A, Boularak A, **Humaidan P**.  
Impact of Mid-Luteal Phase GnRH Agonist Administration on Reproductive Outcomes in GnRH Agonist-Triggered Cycles: A Randomized Controlled Trial.  
Front Endocrinol (Lausanne) 2017 Jun 15; 8:124.
- 3) Christensen P, **Humaidan P**.  
Testing of sperm DNA damage and clinical recommendations.  
Transl Androl Urol 2017 Sep;6(Suppl 4): S607-S609.
- 4) Drakopoulos P, La Marca A, **Polyzos NP**.  
Vitamin D and ovarian reserve: making clinical decisions.  
Hum Reprod 2017 May 1;32(5):1138-1139.
- 5) Drakopoulos P, Mat C, **Polyzos NP**, Santos-Ribeiro S, van de Vijver A, Van Landuyt L, Tournaye H, Blockeel C.  
The Impact of Elevated Progesterone on the Initiation of an Artificially Prepared Frozen Embryo Transfer Cycle: A Case Series.  
Curr Pharm Biotechnol 2017 Nov 10; 18(8):619-621.
- 6) Grode L, Bech BH, Jensen TM, **Humaidan P**, Agerholm IE, Plana-Ripoll O, Ramlau-Hansen CH.  
Prevalence, incidence, and autoimmune comorbidities of celiac disease: a nationwide, population-based study in Denmark from 1977 to 2016.  
Eur J Gastroenterol Hepatol 2017 Oct 25; [Epub ahead of print].
- 7) **Haahr T**, **Elbaek HO**, **Laursen RJ**, **Alsbjerg B**, Jensen JS, **Humaidan P**.  
Treatment of Abnormal Vaginal Microbiota before Frozen Embryo Transfer: Case-Report and Minireview to Discuss the Longitudinal Treatment Efficacy of Oral Clindamycin.  
Front Physiol 2017 Jun 19;8:415.

- 8) **Humaidan P**, Chin W, Rogoff D, D'Hooghe T, Longobardi S, Hubbard J, Schertz J, ESPART Study Investigators. Efficacy and safety of follitropin alfa/lutropin alfa in ART: a randomized controlled trial in poor ovarian responders. *Hum Reprod* 2017 Mar 1;32(3):544-555.
- 9) Jensen AK, Macklon KT, Fedder J, Ernst E, **Humaidan P**, Andersen CY. 86 Successful Births and 9 Ongoing Pregnancies Worldwide in Women Transplanted with Frozen-Thawed Ovarian Tissue: Focus on Birth and Perinatal Outcome in 40 of these Children. *J Assist Reprod Genet* 2017 Mar;34(3):325-336. Erratum in: *J Assist Reprod Genet* 2017 Mar;34(3):337-017-0873-y.
- 10) Kristensen SG, Giorgione V, **Humaidan P**, **Alsbjerg B**, Bjorn AB, Ernst E, Andersen CY. Fertility preservation and refreezing of transplanted ovarian tissue-a potential new way of managing patients with low risk of malignant cell recurrence. *Fertil Steril* 2017 May;107(5):1206-1213.
- 11) Lawrenz B, **Humaidan P**, Kol S, Fatemi HM. GnRHa trigger and luteal coasting: a new approach for the ovarian hyperstimulation syndrome high-risk patient? *Reprod Biomed Online* 2017 Oct 14;[Epub ahead of print].
- 12) Olgan S, **Humaidan P**. GnRH antagonist and letrozole co-treatment in diminished ovarian reserve patients: a proof-of-concept study. *Reprod Biol* 2017 Mar;17(1):105-110.
- 13) Ozgur K, Bulut H, Berkkanoglu M, **Humaidan P**, Coetzee K. Frozen embryo transfer can be performed in the cycle immediately following the freeze-all cycle. *J Assist Reprod Genet* 2017 Sep 22;[Epub ahead of print].
- 14) Riknagel D, Farlie R, Hedegaard M, **Humaidan P**, Struijk JJ. Association between maternal vascular murmur and the small-for-gestational-age fetus with abnormal umbilical artery Doppler flow. *Int J Gynaecol Obstet* 2017 Nov;139(2):211-216.
- 15) Stormlund S, Lossl K, Zedeler A, Bogstad J, Praetorius L, Nielsen HS, Bungum M, Skouby SO, Mikkelsen AL, Andersen AN, Bergh C, **Humaidan P**, Pinborg A. Comparison of a 'freeze-all' strategy including GnRH agonist trigger versus a 'fresh transfer' strategy including hCG trigger in assisted reproductive technology (ART): a study protocol for a randomised controlled trial. *BMJ Open* 2017 Jul 31;7(7):e016106-2017-016106.
- 16) Vuong TNL, Ho MT, Ha TQ, Jensen MB, Andersen CY, **Humaidan P**. Effect of GnRHa ovulation trigger dose on follicular fluid characteristics and granulosa cell gene expression profiles. *J Assist Reprod Genet* 2017 Apr;34(4):471-478.

#### Artikler – Reviews

- 1) Dosouto C, **Haahr T**, **Humaidan P**. Gonadotropin-releasing hormone agonist (GnRHa) trigger - State of the art. *Reprod Biol* 2017 Mar;17(1):1-8.
- 2) **Haahr T**, Roque M, Esteves SC, **Humaidan P**. GnRH Agonist Trigger and LH Activity Luteal Phase Support versus hCG Trigger and Conventional Luteal Phase Support in Fresh embryo Transfer IvF/ICSI Cycles-A Systematic PRISMA Review and Meta-analysis. *Frontiers in Endocrinology* 2017 JUN 7; 8:116.
- 3) Karlsten K, Hrobjartsson A, Korsholm M, Mogensen O, **Humaidan P**, Ravn P. Fertility after uterine artery embolization of fibroids: a systematic review. *Arch Gynecol Obstet* 2017 Oct 20;[Epub ahead of print].

#### Authors reply

- 1) Da Aw L, Zain MM, Esteves SC, **Humaidan P**. REPLY BY THE AUTHORS: Re: Persistent Mullerian Duct Syndrome: a rare entity with a rare presentation in need of multidisciplinary management. *Int Braz J Urol* 2017 Sep-Oct;43(5):1005-1006.

## Publiceret abstract

- 1) Bosch E, Longobardi S, D'Hooghe T, **Humaidan P**.  
Time to pregnancy and birth during fertility treatment - A Delphi consensus.  
Human Reproduction 2017 JUL;32:297-298.
- 2) Drakopoulos P, Vuong NL, Ho NAV, Vaiarelli A, Ho MT, Blockeel C, Camus M, Lam AT, Van de Vijver A, **Humaidan P**, Tournaye H, **Polyzos NP**.  
Corifollitropin alfa followed by hp-HMG versus recombinant FSH in young poor ovarian responders: a multicenter randomized controlled clinical trial.  
Human Reproduction 2017 JUL;32:6-7.
- 3) **Elbaek HO, Shathmigha K, Laursen R, Alsbjerg B, Povlsen BB, Haahr T, Humaidan P**.  
Does protein supplements taken in relation to workout impact sperm quality?  
Human Reproduction 2017 JUL;32:161-161.
- 4) **Haahr T, Humaidan P, Elbaek HO, Alsbjerg B**, Rygaard K, Lilje B, Andersen P, Ng K, Jensen JS.  
Vaginal microbiota and IVF outcomes - Development of a simple diagnostic tool to predict patients at risk of a poor reproductive outcome.  
Human Reproduction 2017 JUL;32:296-297.
- 5) Humaidan P.  
Progesterone support in ART.  
Human Reproduction 2017 JUL;32:66-66.
- 6) **Humaidan P, Esteves S, Haahr T, Roque M**.  
GnRH agonist (GnRHa) trigger for final oocyte maturation in fresh embryo transfer IVF/ICSI cycles - a systematic PRISMA review and meta-analysis.  
Human Reproduction 2017 JUL;32:453-453.
- 7) Lehert P, **Humaidan P**, Alviggi C.  
Multivariate Meta-analysis is required for partially reported multiple endpoints and demonstrates the benefit of rh-LH supplementation on live birth for Poor Ovarian responders.  
Human Reproduction 2017 JUL;32:128-129.

## Kongresbidrag

Humaidan P.  
COS strategy of low prognosis.  
Huhehaote Provincial University Hospital.  
Huhehaote, Kina, november 2017. [Invited speaker].

Humaidan P.  
COS strategy of low prognosis.  
Shijiazhuang Provincial 2nd Hospital. Shijiazhuang, Kina, november 2017.  
(Invited speaker).

Humaidan P.  
COS strategy of low prognosis.  
Jinan Provincial CTM Hospital. Jinan, Kina, november 2017. (Invited speaker).

Humaidan P.  
COS strategy of low prognosis.  
Beijing Workshop for IVF. Beijing, Kina, november 2017. (Invited speaker).

Humaidan P.  
The day after – luteal phase support in COS.  
ESHRE 2017. Geneve, Schweiz, juni 2017.  
(Invited speaker).

Humaidan P.  
Defining success in ART.  
ESHRE 2017. Geneve, Schweiz, juni 2017.  
(Invited speaker).

Humaidan P.  
DUOStim for the POR patient.  
2. Congresso International Huntington de Reproducao Humana. Sao Paulo, Brasilien, maj 2017. (Invited speaker).

Humaidan P.  
From poor to low prognosis.  
2eme Symposium International. Marrakech, Marokko, marts 22017. (Invited speaker).

Humaidan P.  
From POR to low prognosis.  
Young Physician Forum. Beijing, Kina, november 2017. (Invited speaker).

Humaidan P.  
From POR to low prognosis.  
Palestinian Reproductive Specialists. Amman, Jordan, april 2017. (Invited spraker).

Humaidan P.  
From POR to low prognosis.  
SHAPE Meeting. Abu Dhabi, Forenede Arabiske Emirater, april 2017. (Invited speaker).

Humaidan P.  
From POR to low prognosis – New Poseidon stratification.  
Merck Symposium. Beirut, Libanon, november 2017. (Invited speaker).

Humaidan P.  
From POR to low prognosis – New Poseidon stratification.  
Merck Symposium. Teheran, Iran, maj 2017. (Invited speaker).

Humaidan P.  
From POR to low prognosis – New Poseidon stratification.  
Taleghani University Hospital. Teheran, Iran, maj 2017. (Invited speaker).

Humaidan P.  
From POR to low prognosis – New Poseidon stratification.  
Merck Symposium. Yazd, Iran, april 2017. (Invited speaker).

Humaidan P.  
From POR to low prognosis – New Poseidon stratification.  
7th Yazd International Congress and Student Award in Reproductive Medicine. Yazd, Iran, april 2017. (Invited speaker).

Humaidan P.  
The GnRH antagonist protocol – An update.  
SHAPE Meeting. Abu Dhabi, Forenede Arabiske Emirater, april 2017. (Invited speaker).

Humaidan P.  
GnRHa trigger – state of the ART.  
2eme Symposium International. Marrakech, Marokko, marts 2017. (Invited speaker).

Humaidan P.  
GnRHa trigger – the future trigger concept in ART?  
2. Congresso International Huntington de Reproducao Humana. Sao Paolo, Brasilien, maj 2017. (Invited speaker).

Humaidan P.  
Has the time come for PGS in Denmark?  
Aarhus IVF specialist meeting. Aarhus, november 2017. (Invited speaker).

Humaidan P.  
Has the time come for PGS in Denmark?  
Copenhagen IVF specialist meeting. København, september 2017. (Invited speaker).

Humaidan P.  
How to manage the risk of an excessive ovarian response.  
First world conference on luteinizing hormone in ART: Landing in Latin America. Mexico City, Mexico, april 2017. (Invited speaker).

Humaidan P.  
ICOS: A Key of Efficiency.  
Lebanese Fertility Society. Beirut, Libanon, april 2017. (Invited speaker).

Humaidan P.  
Impact of COS – Gonadotropins and ovulation trigger on oocyte competence.  
Annual Conference in Reproductive Medicine. Milano, Italiten, april 2017. (Invited speaker).

Humaidan P.  
Individualized controlled ovarian stimulation: A key of efficiency.  
The Jordanian Society for Fertility and Genetics. Amman, Jordan, april 2017. (Invited speaker).

Humaidan P.  
Is freeze all the future of IVF?  
The 19th World Congress on IVF. Antalya, Tyrkiet, oktober 2017. (Invited speaker).

Humaidan P.  
LH activity supplementation in ART?  
ESHRE SIG Campus Workshop: The more the merrier. Wien, Østrig, september 2017. (Invited speaker).

Humaidan P.  
Low prognosis concept: A new proposed stratification by the Poseidon Group.  
First world conference on luteinizing hormone in ART: Landing in Latin America. Mexico City, Mexico, april 2017. (Invited speaker).

Humaidan P.  
Management of hyperresponse.  
Lebanese Fertility Society. Beirut, Libanon, april 2017. (Invited speaker).

Humaidan P.  
Management of Poseidon Groups 3 and 4. From poor response to low prognosis concept: The new Poseidon criteria.  
EXEMED International Workshop. Athen, Grækenland, oktober 2017. (Invited speaker).

Humaidan P.  
Management of recurrent implantation failure.  
21st International Annual Congress of LSOG. Beirut, Libanon, november 2017. (Invited speaker).

Humaidan P.  
The new Poseidon system for low prognosis patients in ART – A marker of success.  
21st International Annual Congress of LSOG. Beirut, Libanon, november 2017. (Invited speaker).

Humaidan P.  
OHSS prediction and prevention.  
SHAPE Meeting. Abu Dhabi, Forenede Arabiske Emirater, april 2017. (Invited speaker).

Humaidan P.  
The optimal management of POR responders.  
Merck Symposium. Isfahan, Iran, april 2017.  
(Invited speaker).

Humaidan P.  
Personalized luteal phase support – the future of ART?  
The 19th World Congress on IVF. Antalya, Tyrkiet, oktober 2017. (Invited speaker).

Humaidan P.  
Personalized luteal phase support – The future of ART?  
The Jordanian Society for Fertility and Genetics. Amman, Jordan, april 2017. (Invited speaker).

Humaidan P.  
Progesterone support in COS – examining the evidence.  
ESHRE 2017. Geneve, Schweiz, juni 2017.  
(Invited speaker).

Humaidan P.  
What is the Poseidon criteria? From poor response to low prognosis concept: The new Poseidon criteria.  
EXEMED International Workshop. Athen, Grækenland, oktober 2017. (Invited speaker).

Humaidan P.  
Who needs LH supplementation.  
First world conference on luteinizing hormone in ART: Landing in Latin America. Mexico City, Mexico, april 2017. (Invited speaker).

Laursen RJ.  
Controlled ovarian stimulation.  
International Fertility Conference.  
"Contemporary look to the infertility diagnosis and treatment". Vilnius, Litauen, maj 2017.  
(Invited speaker).

Laursen RJ.  
Modern features of male infertility diagnosis and treatment possibilities.  
International Fertility Conference.  
"Contemporary look to the infertility diagnosis and treatment". Vilnius, Litauen, maj 2017.  
(Invited speaker).

## **Undervisning**

Birgit Alsbjerg

- Ekstern lektor, Aarhus Universitet.

Peter Humaidan

- Professor, AUH.

Thor Haahr

- Klinisk assistent, AUH og Hospitalsenhed Midt.

## **Udvalgsarbejde og anden virksomhed**

Bettina B. Povlsen

- Medlem af Nordic IVF-Laboratory Society (NILS).

Birgit Alsbjerg.

- Guideline udarbejdelse. Dansk Fertilitets-selskab.

Helle Elbæk

- Medlem af regional gruppe af fertilitetslæger, der bl.a. udarbejder regional forløbsbeskrivelse til praksis.dk.
- Medlem af subspecialiseringsudvalg med henblik på at forbedre subspecialiseringsuddannelsen i infertilitet af speciallæger i gynækologi/obstetrik.

Lise Thomsen

- Censor ved medicinsk kandidateksamen i gyn/obs, Aarhus Universitet.

Peter Humaidan

- Vejledning for bachelorprojekt, Aarhus Universitet.
- Vejleder for 5 masterprojekter, Aarhus Universitet.

Thor Haahr

- Guideline udarbejdelse (vaginal seeding). Dansk Selskab for Gynækologi og Obstetrik.
- Vejleder for kandidat- og bachelorprojekt, Aarhus Universitet.

## **Videnskabelig bedømmelse**

Birgit Alsbjerg

- Reviewer for European Journal of Obstetrics & Gynecology and Reproductive Biology, Frontiers, Human Reproduction og Reproductive Biomedicine Online.

Helle Elbæk

- Reviewer for Ugeskrift for Læger.

Lise Thomsen

- Reviewer for Asian Journal of Andrology, Human Fertility, Medicine og PLoS One.

Peter Humaidan

- Associate editor: Frontiers in Endocrinology
- Reviewer for Acta Obstetrica et Gynecologica Scandinavica, Archives of Gynecology and Obstetrics, Asian Journal of Andrology, Fertility and Sterility, Gynecological Endocrinology, Human Reproduction, Human Reproduction Update, Obstetrics and Gynecology, Reproductive Biology and Endocrinology, Reproductive Biomedicine Online og Womens Health.

### **Priser, legater og fondsdonationer**

Lønmidler til study nurse funktionen.

Ferring, 120.000 kr.

Merck Group, 150.000 kr.