

## Biennial report 2019

### Study Group on Microcirculation in Rheumatic Diseases (SG MC/RD)

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#### Title of the study group: EULAR Study Group on Microcirculation in Rheumatic Diseases (EULAR SG MC/RD)

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#### A. Introduction

##### A.1. Why a Study group on Microcirculation in Rheumatic Diseases?

The EULAR Study Group on **Microcirculation in Rheumatic Diseases (SG MC/RD)** aims to build an international network of expert centers to facilitate collaboration and exchange knowledge within Europe and provide a platform on which the investigators can:

1. Study (micro)vascular mechanisms involved in the progression of RD with (micro)vascular involvement.
2. Develop natural history investigations operating across existing cohorts of European centers interested in the cooperation and implementation of diagnostic tools on microcirculation.
3. Identify through statistical analysis (based on large samples), models based on (micro)vascular assessment tools to predict disease progression and outcome.
4. Evaluate the microvascular effects of novel target strategies within specific RD populations.

##### A.2. Who we are

The EULAR Study Group on Microcirculation in Rheumatic Diseases was accepted by the EULAR Executive committee in March 2014 and is being supervised by EULAR Committee on Investigative Rheumatology, currently chaired by Prof. X. Mariette. The study group first convened at EULAR 2014 consisting of 12 founding members (Chair: Prof. V. Smith; Co-Chairs: Prof. A. Herrick, Prof. M. Cutolo, Prof. A. Sulli and other founding members: Prof. Y. Allanore, Prof. O. Distler, Prof. N. Damjanov, Prof. U. Müller-Ladner, Dr. W. Hermann, Prof. I. Murat, Dr. V. Riccieri and Prof. AE. Voskuyl) and 28 in members (from which 11 of 5 non- European countries: USA, Brasil, South Africa, Turkey and Japan). Anno 2018 the number of members has risen to over 70 members (from 18 European and 16 non-European countries).

#### B. Summary of EULAR SG MC/RD activities in 2017 – 2018

##### B.1. PROJECTS WITH PUBLICATION

- **SG MC/RD 3:** A cross-sectional, international SURvey on non-iNvaSive tecHniques to assess the mlcrocirculation in patients with RayNaud's phEnomenon (SUNSHINE survey) has been performed in between 471 eligible physicians between October and December 2015 and has been published:

*Ingegnoli F, et al. An international SURvey on non-iNvaSive tecHniques to assess the mlcrocirculation in patients with RayNaud's phEnomenon (SUNSHINE survey). Rheumatol Int. 2017;37(11):1879-90.*

- **SG MC/RD 5:** The role of nailfold videocapillaroscopy (NVC) in systemic lupus erythematosus (SLE) was investigated through a comprehensive systematic literature review. Additionally, correct terminology to define NVC parameters was proposed: capillary density, capillary dimension, haemorrhages and capillary morphology. This systematic review has been published:  
*Cutolo M, et al. Nailfold capillaroscopy in systemic lupus erythematosus: A systematic review and critical appraisal. Autoimmun Rev. 2018;17(4):344-52.*
- **SG MC/RD 10:** The role of endothelial cells (ECs) in systemic sclerosis (SSc) vasculopathy and representing biomarkers were investigated through a comprehensive systematic literature review and categorized according to EC (dys)function in SSc. This systematic review has been published:  
*Mostmans Y, et al. The role of endothelial cells in the vasculopathy of systemic sclerosis : a systematic review. Autoimmun Rev. 2017;16(8):774-86.*
- **SG MC/RD 12:** In SG MC/RD 1, a first pilot study by the EULAR Study Group on Microcirculation in Rheumatic Diseases (EULAR SG MC/RD), a simple definition was proposed to describe the morphology of single capillaries as being normal or abnormal and obtained a moderate reliability. To further fine tune and optimize the reliability of the previously proposed definition, convexity of the capillary head as a conditional criterion for normal capillary morphology was added and subsequently evaluated at the 7<sup>th</sup> EULAR course on capillaroscopy in Genova, September 2016 and resulted in the following manuscript:  
*Cutolo M, et al. Reliability of simple capillaroscopic definitions in describing capillary morphology in rheumatic diseases. Rheumatology (Oxford). 2018;57:757-9.*
- **SG MC/RD 13:** The reliability of microcirculatory flow evaluation with Laser Speckle Contrast Analysis (LASCA) in systemic sclerosis (SSc) patients was evaluated by a systematic literature review and an additional pilot study in 30 SSc patients and 30 health controls, investigating both the intra- and inter-rater reliability. This systematic review with additional pilot study has been published:  
*Cutolo M, et al. Is laser speckle contrast analysis (LASCA) the new kid on the block in systemic sclerosis? A systematic literature review and pilot study to evaluate reliability of LASCA to measure peripheral blood perfusion in scleroderma patients. Autoimmun Rev. 2018;17(8):775-80.*

## B.2. ONGOING PROJECTS

- **SG MC/RD 4:** An observational international multicenter study for the assessment, definition of morphologic nailfold capillary pattern in patients with systemic lupus erythematosus (SLE).
- **SG MC/RD 6:** Nailfold capillaroscopy in pediatric rheumatic diseases and healthy children.
- **SG MC/RD 7:** International comparative image banking for nailfold capillary education in systemic sclerosis and other rheumatic diseases.
- **SG MC/RD 8:** Capillaroscopy in childhood-onset systemic lupus erythematosus (cSLE).

- **SG MC/RD 9:** To step forward to the aim to identify through statistical analysis (based on large samples), models based on (micro)vascular assessment tools to **predict disease progression** and outcome a large multicenter study to evaluate of the role of capillaroscopy in the prediction of severe organ involvement was set up also in close liaison with EUSTAR.
- **SG MC/RD 11:** Joint SCTC-EULAR SG MC RD consensus paper on standardisation of capillaroscopy
- **SG MC/RD 14:** A qualitative systematic review of studies reporting nailfold capillaroscopy procedures in rheumatology.
- **SG MC/RD 15:** Fast Track Algorithm: How to discern a scleroderma pattern from a non-scleroderma pattern.
- **SG MC/RD 16:** A reliability study of LASCA in black Africans with SSc.

## C. Courses, meetings and presentations on behalf of the EULAR SG MC/RD in 2017 – 2018

- Annual European Congress of Rheumatology **EULAR 2017** – June 2017, Madrid (Spain)
  - Lectures:
    - "The importance to differentiate normal from abnormal capillaroscopic images for an early diagnosis of disease" (June 15<sup>th</sup> and June 17<sup>th</sup> 2017)
  - EULAR SG MC/RD meeting: see addendum 1 for the agenda (June 16<sup>th</sup> 2017)
- Annual scientific meeting American College of Rheumatology **ACR 2017** – November 2017, San Diego (USA)
  - Study group on Capillaroscopy (November 5<sup>th</sup> 2017)
  - Workshop on Capillaroscopy (November 6<sup>th</sup> 2017)
  - EULAR SG MC/RD meeting: see addendum 2 for the agenda (November 6<sup>th</sup> 2017)
- **EULAR 2018** – June 2018, Amsterdam (The Netherlands)
  - Workshop on Capillaroscopy
  - Lectures:
    - "The importance to differentiate normal from abnormal capillaroscopic images for an early diagnosis of disease" (June 14<sup>th</sup> 2017 and June 15<sup>th</sup> 2018)
    - EULAR Projects in Investigative Rheumatology "Microcirculation in rheumatic diseases" (June 15<sup>th</sup> 2018)
  - EULAR SG MC/RD meeting: see addendum 3 for the agenda (June 14<sup>th</sup> 2018)
- The **8<sup>th</sup> EULAR course on Capillaroscopy** – September **2018**, Genova (Italy)
  - Course on Capillaroscopy
- **ACR 2018** – November 2018, Chicago (USA)
  - EULAR SG MC/RD meeting: see addendum 4 for the agenda (October 21<sup>st</sup> 2018)
  - Study group on Capillaroscopy (October 23<sup>rd</sup> 2018)
- The **8<sup>th</sup> EUSTAR course on Systemic Sclerosis** – February **2019**, Nijmegen (The Netherlands)

**D. Entire publication list of the EULAR SG MC/RD**

1. Smith V, Beeckman S, Herrick AL, Decuman S, Deschepper E, De Keyser F, Distler O, Foeldvari I, Ingegnoli F, Müller-Ladner U, Riccieri V, Riemekasten G, Sulli A, Voskuyl A and Cutolo M, on behalf of the EULAR study group on microcirculation. An EULAR study group pilot study on reliability of simple capillaroscopic definitions to describe capillary morphology in rheumatic diseases. *Rheumatology*. 2016;55(5):883-890.
2. Lambrecht V, Cutolo M, De Keyser F, Decuman S, Ruaro B, Sulli A, Deschepper E, Smith V, on behalf of the EULAR Study Group on Microcirculation in Rheumatic Diseases. Reliability of the quantitative assessment of peripheral blood perfusion by laser speckle contrast analysis in a systemic sclerosis cohort. *Ann Rheum Dis* 2016;75(6):1263-1264.
3. Mostmans Y, Cutolo M, Giddelo C, Decuman S, Melsens K, Declercq H, Vandecasteele E, De Keyser F, Distler O, Gutermuth J and Smith V, on behalf of the EULAR Study Group on Microcirculation in Rheumatic Diseases. The role of endothelial cells in the vasculopathy of systemic sclerosis : a systematic review. *Autoimmun Rev*. 2017;16(8):774-86.
4. Ingegnoli F, Ughi N, Dinsdale G, Orenti A, Boracchi P, Allanore Y, Foeldvari I, Sulli A, Cutolo M and Smith V, on behalf of the EULAR Study Group on Microcirculation in Rheumatic Diseases. An international SURvey on non-iNvaSive techNIques to assess the mIcrocirculation in patients with RayNaud's phEnomenon (SUNSHINE survey). *Rheumatol Int*. 2017;37(11):1879-90.
5. Cutolo M, Melsens K, Wijnant S, Ingegnoli F, Thevissen K, De Keyser F, Decuman S, Müller-Ladner U, Piette Y, Riccieri V, Ughi N, Vandecasteele E, Vanhaecke A and Smith V, on behalf of the EULAR Study Group on Microcirculation in Rheumatic Diseases. Nailfold capillaroscopy in systemic lupus erythematosus: A systematic review and critical appraisal. *Autoimmun Rev*. 2018;17(4):344-52.
6. Cutolo M, Melsens K, Herrick AL, Foeldvari I, Deschepper E, De Keyser F, Distler O, Ingegnoli F, Mostmans Y, Müller-Ladner U, Pizzorni C, Riccieri V, Ruaro B, Sulli A, Trombetta AC, Vanhaecke A and Smith V, on behalf of the EULAR Study Group on Microcirculation in Rheumatic Diseases. Reliability of simple capillaroscopic definitions in describing capillary morphology in rheumatic diseases. *Rheumatology (Oxford)*. 2018;57(4):757-9.
7. Cutolo M, Vanhaecke A, Ruaro B, Deschepper E, Ickinger C, Melsens K, Piette Y, Trombetta AC, De Keyser F and Smith V, on behalf of the EULAR Study Group on Microcirculation in Rheumatic Diseases. Is laser speckle contrast analysis (LASCA) the new kid on the block in systemic sclerosis? A systematic literature review and pilot study to evaluate reliability of LASCA to measure peripheral blood perfusion in scleroderma patients. *Autoimmun Rev*. 2018;17(8):775-80.

Addendum 1:

**EULAR Study Group on Microcirculation (SG MC) in Rheumatic Diseases**  
Friday June 16<sup>th</sup> 2017, 8-9.30AM  
**ROOM A10.05**

**A. Chair Report**

- Welcome
- Report on the actual status of the SG position and EULAR requirements
- Report on the SG structure and members. Published articles.

**B. Project Reports**

- Ariane Herrick (10'):  
**SCTC capillaroscopy working group: structure and aims**
- Ivan Foeldvari, Karin Melsens, Maurizio Cutolo, Francesca Ingegnoli and Vanessa Smith:  
**Capillaroscopy in juvenile rheumatic patients - SG\_MC/RD6: update (10')**
- Francesca Ingegnoli and Valeria Ricciari (10'):  
**SLE capillaroscopy study - SG\_MC/RD4: update**

**C. New projects proposals**

- Dieneke Schonenberg (10'): **Nailfold videocapillaroscopy in childhood-onset SLE, a multicenter international prospective longitudinal cohort study**

**D. Teaching**

- Marwin Gutierrez (15'):  
**Systematic review: capillaroscopy in dermatomyositis and polymyositis**
- Maurizio Cutolo, Yora Mostmans, Vanessa Smith, Oliver Distler  
**Role of endothelial cells in vasculopathy in SSc**

**E. General Discussion**

Addendum 2:

**EULAR study group on microcirculation (SG\_MC)  
in Rheumatic diseases - ACR meeting 2017  
Monday November 6<sup>th</sup>, 2017 12.30 - 2.00 pm  
ROOM 13 – San Diego Convention Centre**

**A. Chair Report**

- Welcome
- Report on the actual status of the **SG\_MC position** and EULAR requirements
- Report on the **SG\_MC** structure and members. Published articles.

**B. Project Reports**

- Ariane Herrick (10'):  
**SCTC capillaroscopy working group: structure and aims**
- Karin Melsens, Ivan Foeldvari, Maurizio Cutolo, Francesca Ingegnoli and Vanessa Smith (10'):  
**Capillaroscopy in juvenile rheumatic patients - SG\_MC/RD6: update**
- Francesca Ingegnoli, Valeria Riccieri (10'):  
**SLE capillaroscopy study - SG\_MC/RD4: update**

**C. News from studygroup members**

- Maurizio Cutolo, Karin Melsens, Ariane Herrick, Ivan Foeldvari, Oliver Distler, Francesca Ingegnoli, Ulf Müller-Ladner, Carmen Pizzorni, Valeria Riccieri, Barbara Ruaro, Alberto Sulli, Amelia C. Trombetta, Amber Vanhaecke and Vanessa Smith  
**Reliability of simple capillaroscopic definitions in describing capillary morphology in rheumatic diseases. (accepted for publication in Rheumatology)**
- Graham Dinsdale, Ariane Herrick (10'):  
**Reliability of capillaroscopy – messages from a multicentre study**
- Stefanie Friedrich, Gabriela Riemekasten (10'):  
**The Xeralite method for the use in scleroderma: procedure and results**

**D. New projects proposals**

- Merlijn van den Berg, Dienneke Schonenberg (10'):  
**Nailfold videocapillaroscopy in childhood-onset SLE, a multicenter international prospective longitudinal cohort study**

E. **Teaching**

- Amber Vanhaecke, Francesca Ingegnoli (15'):  
**Systematic review: capillaroscopy in SLE**
  - will be postponed to EULAR 2018 due to time restraints
- Maurizio Cutolo, Yora Mostmans, Vanessa Smith, Oliver Distler (15'):  
**Role of endothelial cells in vasculopathy in scleroderma**

F. **General Discussion**

Addendum 3:

**EULAR study group on microcirculation (SG\_MC)  
in Rheumatic diseases - EULAR meeting 2018**  
Thursday June 14<sup>th</sup>, 2018 08.30 - 10.00 am  
**ROOM Meeting Room E105 (Forum Centre) – Amsterdam**

**A. Chair Report**

- Welcome
- Report on the actual status of the **SG\_MC position** and EULAR requirements
- Report on the **SG\_MC** structure and members.
- Published articles.

**B. Project Reports**

- Karin Melsens, Ivan Foeldvari, Maurizio Cutolo, Francesca Ingegnoli and Vanessa Smith (10'):  
**Capillaroscopy in juvenile rheumatic patients - SG\_MC/RD6: update**
- Francesca Ingegnoli, Valeria Riccieri (5'):  
**SLE capillaroscopy study - SG\_MC/RD4: update**

**C. News from study group members**

- Graham Dinsdale, Ariane Herrick (10'):  
**The assessment of nailfold capillaries: comparison of dermoscopy and nailfold videocapillaroscopy**
- Marco Sebastiani, ..., Lorenzo Cavagna, et al (10'):  
**NAilfold capillaroSCopy in Antisynthetase syndrome (NASCAR): results of a multicenter, International study of the American and European NETwork of Antisynthetase Syndrome (AENEAS)**
- Claudia Ickinger, M Tikly (10'):  
**A reliability study of Laser Speckle Contrast analysis in Black Africans with systemic sclerosis**

**D. New projects proposals**

- John Pauling (5'):  
**Predictors of treatment response for vascular manifestations of SSc**
- Dieneke Schonenberg (5'):  
**Nailfold videocapillaroscopy in childhood-onset SLE, a multicenter international**

## prospective longitudinal cohort study

### E. Teaching, updating and news

- Maurizio Cutolo, Amelia Trombetta (10'):  
**Automated assessment of absolute nailfold capillary number in videocapillaroscopic images**
- Karin Melsens, Francesca Ingegnoli (10'):  
**Systematic review: capillaroscopy in SLE**

### F. General Discussion

Addendum 4:

**EULAR study group on microcirculation (SG\_MC)  
in Rheumatic diseases - ACR meeting 2018  
Sunday October 21<sup>st</sup>, 2018 12.30 - 2.30 PM  
ROOM GEOGRAPHY – MARRIOTT MARQUIS HOTEL**

**A. Chair Report**

- Welcome
- Report on the actual status of the **SG\_MC position** and EULAR requirements
- Report on the **SG\_MC** structure and members. Published articles.

**B. Project Reports**

- Amber Vanhaecke (15'): **Inter and intra reliability of Laser Speckle Contrast Analysis (LASCA)**
- Karin Melsens, Ivan Foeldvari, Maurizio Cutolo, Francesca Ingegnoli and Vanessa Smith (10'): **Capillaroscopy in juvenile rheumatic patients - SG\_MC/RD6: update**

**C. News from studygroup members**

- Ariane Herrick (15'): **How many fingers to evaluate when performing capillaroscopy?**

**D. New projects proposals**

- Francesca Ingegnoli (10'): **A qualitative systematic review of studies reporting nailfold capillaroscopy procedures in rheumatology – SG\_MC/RD14**

**E. Teaching**

- Francesca Ingegnoli (15'): **Systematic review: capillaroscopy in SLE**  
➤ will be postponed to EULAR 2019 due to time restraints
- Maurizio Cutolo, Yora Mostmans, Vanessa Smith, Oliver Distler (15'): **Role of endothelial cells in vasculopathy in scleroderma**

**F. General Discussion**